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bulletin

Vol. 9, No. 5 January 1982

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D. C. 20550

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NSF Announcements for January

This first issue of the *Bulletin* in 1982 contains information on research centers and laboratories, proposal deadlines, meetings, publications, and sources for more detailed information. Publications in this *Bulletin* may be obtained on the Publications Order Form. The area code of all telephone numbers listed is 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

Synchrotron Radiation Facilities

NSF's Division of Materials Research provides support for the operation of the national user facilities listed below. Access to these facilities are provided without charge to the user.

Three synchrotron radiation facilities provide monochromatic radiation spanning the electromagnetic spectrum from the ultraviolet through the X-ray region for a wide variety of experiments including electron photoemission, absorption, fluorescence and diffraction experiments. For further information, contact facility directors listed below.

Dr. Ednor Rowe, Director, Wisconsin Synchrotron Radiation Center, 3725 Schneider Dr., Route 4, Stoughton, WI 53589 (608/873-6651)

Dr. Arthur Bienenstock, Director, Stanford Synchrotron Radiation Laboratory, SLAC, P.O. Box 4349 Bin 69, Stanford, CA 94305 (415/854-9300 Ext. 3153)

Dr. Boris Batterman, Director, Cornell High Energy Synchrotron Source, Dept. of Applied Physics, Clark Hall, Cornell Univ., Ithaca, NY 14853 (607/256-7163)

New Investigators in Research in Information Science

The deadline for new investigators to submit proposals for Special Research Initiation Awards in Information Science is Feb. 3, 1982.

For additional information, request the program annoucement, *Research in Information Science and Technology.* The announcement defines the program goals: to increase understanding of the properties and structures of information and information transfer, and to contribute to the store of scientific and technical knowledge which can be applied in the design of information systems.

Copies of the announcement, NSF 81-34, may be requested on the Publications Order Form, or by contacting the Division of Information Science and Technology (357-9569).

Small Angle Scattering Research

The National Center for Small Angle Scattering Research (NCSASR) is located at the Oak Ridge National Laboratory, Tenn. The Center permits a wide variety of experiments with facilities for small angle X-ray scattering (SAXS) and small angle neutron scattering (SANS). Both SANS and SAXS have two-dimensional positron sensitive detectors with data analysis and software available for processing the data. For further information, contact the Director, Dr. Walter Koehler, National Center for Small Angle Scattering Research, Oak Ridge National Laboratory, Oak Ridge, TN 37830.

National Magnet Laboratory

The Francis Bitter National Magnet Laboratory (NML) can provide magnetic fields up to 30 Tesla in a variety of configurations. For information concerning experiments at the NML, contact the Director, Dr. Peter Wolff, Francis Bitter National Magnet Laboratory, 170 Albany St., Cambridge, MA 02139 (617/253-1557).

Changes in the Engineering Research Initiation Program

NSF has removed the restriction added in fiscal year 1982 which states that applicants must hold appointments in doctorate granting departments in order to be eligible for Engineering Research Initiation Grants. Because of this late change, proposals from individuals who would have been excluded under the "doctorate granting department" rule may be postmarked as late as Feb. 1, 1982. Proposals from all other applicants should have been postmarked by Dec. 1, 1981. Proposals submitted under both deadline dates will be merged before evaluation. All other conditions stated in the program announcement (NSF 81-52) remain the same. For further information, contact Ms. Janice Apruzese, Engineering Directorate (357-9834).

NS1. 3:

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through Sept. 30, 1981. Editor, Barbara Tufty, Public Information Branch.

Program Deadlines and Target Dates For Proposals

The following listing gives the dates on which proposals for grants are due at NSF in the next three months. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form. These dates are subject to change.

Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

Feb. 1, 1982. Ethics and Values in Science and Technology. Interdisciplinary incentive awards (Brochure SE 81-62A). Contact Dr. Rachelle Hollander, Division of Intergovernmental and Public Service Science and Technology Programs (357-7552).

Feb. 1, 1982. Ethics and Values in Science and Technology. Sustained development awards (Brochure SE 81-62B). Contact Dr. Rachelle Hollander, Division of Intergovernmental and Public Service Science and Technology Programs (357-7552).

Feb. 3, 1982. Information Science and Technology. Special research initiation awards for new investigators (Brochure NSF 81-34). Contact Dr. Edward Weiss, Division of Information Science and Technology (357-9569).

Mar. 1, 1982. U.S.-India Cooperative Science (Brochure NSF 80-53). For travel between July 1, and Sept. 30, 1982. Contact Ms. Hildegard Kramer, Division of International Programs (357-9550).

Mar. 1, 1982. U.S-Pakistan Cooperative Science (Brochure NSF 80-49). For travel between July 1 and Sept. 30, 1982. Contact Ms. Hildegard Kramer, Division of International Programs (357-9550).

Mar. 15, 1982. U.S.-India Exchange of Scientists (Brochure NSF 78-66). For travel between Nov. 15, 1982 and May 15, 1983. Contact Mrs. Hildegard Kramer, Division of International Programs (357-9550).

Target Dates for Proposals

Proposals received after this cutoff date will be reviewed although they may miss a particular panel meeting.

Jan. 1, 1982. Policy Research and Analysis. Extramural research to be funded in fiscal year 1982 (Brochure NSF 78-78). Contact Ms. Agnes Rhodes, Division of Policy Research and Analysis (357-9689).

Jan. 1, 1982. Earth Sciences: Geology, Geophysics, Geochemistry, and Petrology. Contact Dr. Robin Brett, Division of Earth Sciences (357-7958).

Jan. 4, 1982. Ethics and Values in Science and Technology. Preliminary proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

Jan. 15, 1982. Ecology. Contact Dr. Gary Barrett, Division of Environmental Biology (357-9734).

Jan. 15, 1982. Systematic Biology. Contact Dr. Grady Webster, Division of Environmental Biology (357-9588).

Jan. 15, 1982. Population Biology and Physiological Ecology. Contact Dr. Jerry Downhower (357-9728).

Feb. 1, 1982. Ocean Sciences Research. Contact Dr. Robert Wall, Division of Ocean Sciences (357-7912).

Feb. 1, 1982. Biochemistry. Contact Dr. Michael Cusanovich, Division of Physiology, Cellular and Molecular Biology (357-7945).

Feb. 1, 1982. Biophysics. Contact Dr. Arthur Kowalsky, Division of Physiology, Cellular and Molecular Biology (357-7777).

Feb. 1, 1982. Cell Biology. Contact Dr. Jack Pate, Division of Physiology, Cellular and Molecular Biology (357-7474).

Feb. 1, 1982. Cell Physiology. Contact Dr. Joseph Albright, Division of Physiology, Cellular and Molecular Biology (357-7377).

Feb. 1, 1982. Developmental Biology. Contact Dr. Susan Bryant, Division of Physiology, Cellular and Molecular Biology (357-7989).

Feb. 1, 1982. Genetic Biology. Contact Dr. DeLill Nasser, Division of Physiology, Cellular and Molecular Biology (357-9687).

Feb. 1, 1982. Regulatory Biology. Contact Dr. Bruce Umminger, Division of Physiology, Cellular and Molecular Biology (357-7975).

Feb. 2, 1982. Economics. Contact Dr. Daniel Newlon, Dr. James Blackman, or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674).

Feb. 2, 1982. Geography and Regional Science. Contact Dr. James Blackman, Division of Social and Economic Science (357-9674).

Feb. 2, 1982. Political Science. Contact Dr. Frank Scioli, Jr., Division of Social and Economic Science (357-7534).

Feb. 2, 1982. Law and Social Sciences. Contact Dr. Felice Levine, Division of Social and Economic Science (357-9567).

Feb. 2, 1982. Regulation and Policy Analysis. Contact Dr. Laurence Rosenberg (357-7417) or Dr. Trudi Miller (357-7569), Division of Social and Economic Science.

Feb. 2, 1982. Sociology. Contact Dr. James Zuiches, Division of Social and Economic Science (357-7802).

Feb. 2, 1982. Measurement Methods and Data Resources. Contact Dr. Murray Aborn, Division of Social and Economic Science (357-7913).

Target Dates for Climate Dynamics

Target dates for submission of proposals to the Climate Dynamics program occur three times a year: May 1, August 1, and December 1. For further information, contact Dr. Alan Hecht, Division of Atmospheric Sciences (357-9892).

Proposals may be submitted for the following programs at any time of the year. It takes approximately six to nine months to process a proposal. Brochures indicated in parentheses may be ordered on the Publications Order Form.

Division of Behavioral and Neural Sciences

Anthropology. Contact Dr. John Yellen (357-7804).

Linguistics. Contact Dr. Paul Chapin (357-7696).

Memory and Cognitive Processes. Contact Dr. Joseph Young (357-9898).

Neurobiology. Contact Dr. Steven E. Kornguth (357-7471).

Psychobiology. Contact Dr. Fred Stollnitz (357-7949).

Sensory Physiology and Perception. Contact Dr. Terrence Dolan (357-7428).

Social and Developmental Psychology. Contact Dr. Richard Louttit (357-9485).

Division of Environmental Biology

Biological Research Resources. Contact Dr. James Tyler (357-7475).

Doctoral Dissertation Research. Contact Mr. Mark Courtney (357-9598).

Ecosystem Studies. Contact Dr. W. Franklin Harris (357-9596).

Engineering Research Equipment (Brochure NSF 81-31). Contact the appropriate Engineering Division: Electrical, Computer, and Systems Engineering (357-9618); Chemical and Process Engineering (357-9606); Civil and Environmental Engineering (357-9545); and Mechanical Engineering and Applied Mechanics (357-9542). For Administrative inquiries, contact Ms. Janice Apruzese, Directorate for Engineering (357-9834).

Industry/University Cooperative Research Projects (Brochure NSF 80-31). Contact Division of Industrial Science and Technological Innovation: Dr. Frederick Betz (357-7784) or Mr. Alex Schwarzkopf (357-7527).

Research in Information Science and Technology (Brochure NSF 81-34). Contact the Division of Information Science and Technology (357-9572).

Science in Developing Countries. For current guidelines, contact Dr. Gordon Hiebert, Division of International Programs (357-9537).

U.S.-China Cooperative Science. For joint research projects and a very limited number of joint seminars in six areas of basic science: archaeology, astronomy, chemistry of natural products, linguistics, materials science (ceramics, metallurgy and polymers), and systems analysis (decision and management sciences and operations research). For current guidelines, contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

U.S.-East Asia Cooperative Science (Brochure NSF 81-30). For projects with Indonesia, Malaysia, Thailand, and Singapore, contact Dr. Gordon Hiebert, Division of International Programs (357-9537); for projects with Korea and the Philippines, contact Dr. Gerald A. Edwards, Division of International Programs (357-9537).

U.S.-New Zealand Cooperative Science. Letter-proposals for travel costs only for three-week visits for the purpose of developing cooperative research in physical oceanography, marine geology and geophysics, or marine biology. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

January 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St. N.W., Washington, D.C. 20550.

Check:

- ☐ NSF 78-41. Grants for Scientific Research.
- ☐ NSF 78-66. U.S.-India Exchange of Scientists.
- ☐ NSF 78-78. Policy Research and Analysis.
- ☐ NSF 80-31. Industry/University Cooperative Research.
- ☐ NSF 80-49. U.S.-Pakistan Cooperative Science.
- ☐ NSF 80-53. U.S.-India Cooperative Science.
- ☐ NSF 81-30. U.S.-East Asia Cooperative Science.
- ☐ NSF 81-31. Engineering Research Equipment.
- ☐ NSF 81-34. Research in Information Science and Technology.
- ☐ SE 80-62. Ethics and Values in Science and Technology.
- ☐ SE 81-62A. Interdisciplinary Incentive Awards. EVIST.
- ☐ SE 81-62B. Sustained Development Awards. EVIST.

Name: _____

Title: _____

Address: _____

_____

Women in Science Career Workshops

Women who have at least a bachelor's degree in science, mathematics, or engineering, but are presently neither in graduate school nor employed in scientific jobs commensurate with their training, may apply to attend one- or two-day Science Career Workshops. The purpose of the workshops is to give practical advice on updating scientific knowledge, on dealing with problems faced by women who choose to combine science careers with homemaking, and on techniques for entering graduate school or obtaining employment in science. The dates, locations, and contact persons are as follows:

Jan. 21-22, at Spartanburg, S.C. Dr. Sharon Lambert, Dept. of Chemistry, Converse College, Spartanburg, S.C. 29301 (803/585-6421).

Jan. 26, at Atlanta, Ga. Dr. Virginia Watts, College of Science and Liberal Studies, Georgia Institute of Technology, Atlanta, GA 30332 (404/894-3300).

Jan. 30, at Wilsonville, Ore. Dr. Ralph Nelsen, Columbia Education Center, 11325 Southeast Lexington, Portland, OR 97266 (503/760-2346).

Feb. 13, at Los Alamos, N.M. Dr. Peggy Blackwell, Dept. of Behavioral Research, Univ. of New Mexico, Albuquerque, NM 87131 (505/277-4233).

Feb. 20, at Seattle, Wash. Dr. Ralph Nelsen (See above).

Late Feb. or early March, at Roswell, N.M. Dr. Peggy Blackwell (See above).

Feb. 26-27, at Iowa City, Iowa. Dr. Classie Hoyle, Dept. of Science Education, Univ. of Iowa, Iowa City, IA 52242 (319/353-4619).

Feb. 27, at Pasco, Wash. Dr. Ralph Nelsen (See above).

March 6, at Gresham, Ore. Dr. Ralph Nelsen (See above).

March 27, at Dearborn, Mich. Ms. Mimi Singer, Women's Center, Univ. of Michigan, Dearborn, MI 48182 (313/593-5147).

April 3, at Dayton, Ohio. Ms. Nancy Cook Cherry, School of Engineering, Univ. of Dayton, Dayton, OH 45469 (513/229-2736).

April 17, at Schenectady, N.Y. Dr. Margaret Schadler, Dept. of Biology, Union College, Schenectady, N.Y. 12308 (518/370-6243).

April 24, at St. Peter, Minn. Dr. Barbara Simpson, Dept. of Psychology, Gustavus Adolphus College, St. Peter, MN 56082 (507/931-7449).

April 24, at Costa Mesa, Calif. Dr. Don Low, Dept. of Biological Sciences, Orange Coast College, Costa Mesa, CA 92626 (714/556-5906).

National Science Board Meeting

The National Science Board will hold its 233rd meeting on Feb. 18 and 19 in the Board Room (Rm. 540), NSF.

Portions of the meeting will be open to the public. Requests for information on the meeting, the schedule or agendas may be directed to the Office of the National Science Board (357-9582).

November/December Mosaic

Articles in the November/December issue of *Mosaic* magazine cover a range of research:

– Research toward machines that are sensitive to depth, space, texture, and motion; designed in an effort to duplicate human vision.

– The application of plate tectonic theory to the exploration of mineral deposits.

– The production of amorphous metals—materials with the gross characteristics of metals and the fine, non-crystalline structure of glass—and the improved ability to tailor-make specific glassy metals for specific purposes.

– The effort to dampen the destructive force of an earthquake to buildings by uncoupling their foundations with base-isolation devices.

– Precision measurement and the refinement of fundamental constants.

Subscriptions of *Mosaic* are available at $12 for six issues a year ($15 foreign) from the U.S. Government Printing Office, Wash., D.C. 20402.

Antarctic Bibliography: Volume II

The Library of Congress has published Volume II of the *Antarctic Bibliography* for NSF. The 468-page hardbound book contains 2,362 abstracts covering the world's recent antarctic literature through 1980. Abstracts are arranged under the following headings: general biological sciences, cartography, expeditions, geological sciences, ice and snow, logistics equipment and supplies, medical sciences, meteorology, oceanography, atmospheric physics, terrestrial physics, and political geography. Material is indexed according to authors, subjects, geographic names, and grantees.

The Volume is available from the Government Printing Office, Wash., D.C. 20402. Request stock number 030-018-00021-4. Price is $15. A flier describing availability of back issues of the *Antarctic Bibliography* may be obtained free from NSF's Division of Polar Programs (357-7817).

Science Education Development and Research Source Book of Projects

The *Source Book of Projects*, providing information on the fiscal year 1982 awards made in the Science Education Development and Research Division, is presently available. This publication includes reference to projects supported by this Division in fiscal years 1978 through 1981, and to most projects initiated as early as 1975—a total of approximately 450. Ready reference to these projects is provided by a comprehensive key word index derived from the titles and descriptive summaries. The book is intended as a continuing reference guide to research and development activity of interest to the scientific and engineering education community. The book, SE 82-80, may be requested on the Publications Order Form.

Physics Advisory Committee

The Advisory Committee for Physics will meet March 4, 5, and 6, 1982 at NSF. For further information, contact Dr. Laura Bautz, Division of Physics (357-7611).

Positions Open in NSF

Applicants for the following positions should submit resumes to NSF, Personnel Administration Branch, Room 212, 1800 G Street, N.W., Washington, D.C. 20550. Attn: Mr. E. Paul Broglio (357-7840). NSF is an Equal Opportunity Employer.

- **NSF's Division of Mathematical and Computer Sciences** is seeking qualified applicants for positions in the Mathematical Sciences which periodically become available. The positions are filled on a one-year or two-year rotational basis and are excepted from the competitive civil service. The salaries are negotiable and range from $39,689 to $50,112 per annum (GS-14/15 equivalent). The openings are in the fields of classical analysis, modern analysis, applied mathematics, and statistics and probability. Applicants should have a Ph.D. or equivalent experience and training in an appropriate field, plus six years of successful scientific research experience. A broad general knowledge of the field and some administrative experience are also required.
- **NSF's Division of Atmospheric Sciences** is seeking qualified applicants for positions in the Atmospheric Sciences which periodically become available. The positions are filled on a one-year or two-year rotational basis and are excepted from the competitive civil service. The salaries are negotiable and range from $33,586 to $50,112 per annum (GS-13/14 equivalent). Applicants should have a Ph.D. or equivalent experience and training in an appropriate field, plus four years of successful scientific research experience. A broad general knowledge of the field and some administrative experience are also required.

List of Grants by College Research Instrumentation Program

A list of awards made in NSF's Two- and Four-Year College Research Instrumentation program in fiscal year 1981 has been published.

Copies may be obtained by writing to Dr. Howard Hines, Division of Program Development, Rm. 416, NSF.

Staff Changes

Manfred J. Cziesla to Head, Western Europe Section, Division of International Programs (357-7554)

James B. Hoehn to Associate Study Director, Universities and Nonprofit Institutions Studies Group, R and D Economic Studies Section, Division of Science Resource Studies (653-9152)

Alexander L. Sutherland to Systems Integration Engineer, Engineering and Operations Section, Office of Ocean Scientific Drilling (357-7326)

Sheila E. Taube to Assistant Program Director, Genetic Biology Program, Molecular and Genetic Biosciences Section, Division of Physiology, Cellular and Molecular Biology (357-9687)

Harvey Willard to Head, Nuclear Science Section, Division of Physics (357-7993)

Corrections. The following entries in the November issue are corrected to read:

Rana A. Fine to Associate Program Director, Ocean Dynamics Program, Ocean Sciences Research Section, Division of Ocean Sciences (357-7906)

Michael R. Reeve to Program Director, Biological Oceanography Program, Ocean Sciences Research Section, Division of Ocean Sciences (357-9600)

New Deadlines Established for U.S.-Republic of Korea Cooperative Science Program

A new deadline requirement has been established for the U.S.-Republic of Korea Cooperative Science program: Jan. 1 and July 1, beginning July 1, 1982. Until the July 1982 date, proposals will be individually processed as in the past. Proposals for cooperative research, short- and long-term visits, and seminars may be submitted in the emphasis areas of biochemical engineering, marine science, and other fields of NSF interest. For further information, request the brochure NSF 81-30 on the Publications Order Form, or contact Dr. Gerald A. Edwards, Division of International Programs (357-9537).

National Science Foundation
Washington, D.C. 20550

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bulletin

Vol. 9, N0. 6 February 1982

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D. C. 20550

NSF Announcements for February

The February *NSF Bulletin* contains items on programs, deadlines, publications, and sources for more detailed information. Publications listed in this *Bulletin* may be obtained on the Publications Order Form. The area code of all telephone numbers listed is 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

Foreign Travel to International Scientific Meetings and NATO Advanced Study Institutes

NSF's International Travel Grant (ITG) program was discontinued as of Oct. 1, 1981. A separate budget for international travel awards no longer exists. NSF has established the following policy for future support of activities previously provided for under the ITG program.

1. Proposals for travel awards to support U.S. participation in international scientific meetings held abroad will be handled by the NSF unit with responsibility for the area of scientific interest.
2. Applications for support of travel to attend NATO Advanced Study Institutes held abroad will be handled by the Directorate for Science and Engineering Education.

Each NSF directorate is establishing policies and procedures for handling proposals and inquiries from the scientific community related to the subject of foreign travel.

All proposals which have been received for support with fiscal year 1982 funds are being transferred to the appropriate directorate for action. Applicants have been advised accordingly.

January/February Mosaic

Articles in the January/February issue of *Mosaic* magazine cover a range of research:

—The revolution in computer design processes stemming from large integrated circuit technology.

—The refinement of data gathered over more than two hundred years of solar observation indicating the sun is shrinking.

—Research toward a better understanding of where nitrous oxide comes from and how to deal with its increasing threat to the atmosphere.

—The effort to increase the compression strength of concrete and thereby create a slimmer support system for concrete construction.

—The effort to obtain a detailed record of the earth's paleohistory from sediment removed beneath the ancient lakes of eastern Africa.

Subscriptions to *Mosaic* are available at $12 for six issues a year ($15 foreign) from the U.S. Government Printing Office, Wash., D.C. 20402.

Revision of U.S.-Australia Guidelines

The *Program Announcement* for the U.S.-Australia Cooperative Science program (NSF 81-49) is revised for 1982 as follows:

1) The deadline for cooperative research/short-term visit proposals is April 1, 1982, for any project to begin in 1983. No proposals will be accepted on Oct. 1 (as indicated in the *Announcement*). Maximum support for this activity is limited to one round-trip airfare, the equivalent of 60 days per diem, and other necessary miscellaneous costs not to exceed $10,000 per project. (Deadlines for other proposals, including seminars and workshops, cooperative research exchange and "no cost" projects, remain April 1 and Oct. 1.)

2) NSF support for seminars and workshops is limited to a maximum of $20,000.

3) The maximum duration of cooperative research exchange projects is reduced to two years per proposal. No continuing awards will be made.

4) The long-term visit activity is discontinued. Regardless of the proposed length of stay, budget requests should conform to the guidelines for short-term visits (60 days), as revised above. Questions concerning these changes should be directed to Mr. Alan Milsap, Division of International Programs (357-9558).

Page Limit for Proposals

Scientists submitting proposals to NSF are reminded that the page limit for project descriptions is normally 15 single-spaced pages. This rule has been effective since Aug. 1978.

The Physiology, Cellular and Molecular Biology Division of the Directorate for Biological, Behavioral, and Social Sciences emphasizes the fact that proposals exceeding this page limit will be returned. For further information, program officers should be contacted.

Physics Advisory Committee

The Advisory Committee for Physics will meet March 4, 5, and 6, 1982 at NSF. For further information, contact Dr. Laura Bautz, Division of Physics (357-7611).

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through Sept. 30, 1986.
Editor: Barbara Tufty, Public Information Branch

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Program Deadlines and Target Dates For Proposals

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Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

Feb. 1, 1982. Ethics and Values in Science and Technology. Interdisciplinary incentive awards (Brochure SE 81-62A). Contact Dr. Rachelle Hollander, Division of Intergovernmental and Public Service Science and Technology Programs (357-7552).

Feb. 1, 1982. Ethics and Values in Science and Technology. Sustained development awards (Brochure SE 81-62B). Contact Dr. Rachelle Hollander, Division of Intergovernmental and Public Service Science and Technology Programs (357-7552).

Feb. 3, 1982. Information Science and Technology. Special research initiation awards for new investigators (Brochure NSF 81-34). Contact Dr. Edward Weiss, Division of Information Science and Technology (357-9569).

Mar. 1, 1982. U.S.-India Cooperative Science (Brochure NSF 80-53). For travel between July 1, and Sept. 30, 1982. Contact Division of International Programs (357-9550).

Mar. 1, 1982. U.S-Pakistan Cooperative Science (Brochure NSF 80-49). For travel between July 1 and Sept. 30, 1982. Contact Division of International Programs (357-9550).

Mar. 15, 1982. U.S.-India Exchange of Scientists (Brochure NSF 78-66). For travel between Nov. 15, 1982 and May 15, 1983. Contact Division of International Programs (357-9550).

Apr. 1, 1982. U.S.-Australia Cooperative Science (Brochure NSF 81-49). For all projects, including cooperative research (short- or long-term visits) and joint seminars/workshops, with requested effective dates falling between Jan. 1 and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. U.S.-New Zealand Cooperative Science (Brochure NSF 81-50). For all projects, including cooperative research (short- or long-term visits) and joint seminars/workshops, with requested effective dates falling between Jan. 1, and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. Ethics and Values in Science and Technology. Formal Proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

Apr. 1, 1982. U.S.-Japan Cooperative Science. Cooperative research proposals. Deadline does not apply to proposals in marine biology or food productivity. Contact Mr. Charles Owens, Division of International Programs (357-9537).

Target Dates for Proposals

Proposals received after this cutoff date will be reviewed although they may miss a particular panel meeting.

Feb. 1, 1982. Ocean Sciences Research. Contact Dr. Robert Wall, Division of Ocean Sciences (357-7912).

Feb. 1, 1982. Biochemistry. Contact Dr. Michael Cusanovich, Division of Physiology, Cellular and Molecular Biology (357-7945).

Feb. 1, 1982. Biophysics. Contact Dr. Arthur Kowalsky, Division of Physiology, Cellular and Molecular Biology (357-7777).

Feb. 1, 1982. Cell Biology. Contact Dr. Jack Pate, Division of Physiology, Cellular and Molecular Biology (357-7474).

Feb. 1, 1982. Cell Physiology. Contact Dr. Joseph Albright, Division of Physiology, Cellular and Molecular Biology (357-7377).

Feb. 1, 1982. Developmental Biology. Contact Dr. Susan Bryant, Division of Physiology, Cellular and Molecular Biology (357-7989).

Feb. 1, 1982. Genetic Biology. Contact Dr. DeLill Nasser, Division of Physiology, Cellular and Molecular Biology (357-9687).

Feb. 1, 1982. Regulatory Biology. Contact Dr. Bruce Umminger, Division of Physiology, Cellular and Molecular Biology (357-7975).

Feb. 2, 1982. Economics. Contact Dr. Daniel Newlon, Dr. James Blackman, or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9674).

Feb. 2, 1982. Geography and Regional Science. Contact Dr. James Blackman, Division of Social and Economic Science (357-9674).

Feb. 2, 1982. Political Science. Contact Dr. Frank Scioli, Jr., Division of Social and Economic Science (357-7534).

Feb. 2, 1982. Law and Social Sciences. Contact Dr. Felice Levine, Division of Social and Economic Science (357-9567).

Feb. 2, 1982. Regulation and Policy Analysis. Contact Dr. Laurence Rosenberg (357-7417) or Dr. Trudi Miller (357-7569), Division of Social and Economic Science.

Feb. 2, 1982. Sociology. Contact Dr. James Zuiches, Division of Social and Economic Science (357-7802).

Feb. 2, 1982. Measurement Methods and Data Resources. Contact Dr. Murray Aborn, Division of Social and Economic Science (357-7913).

Feb. 26, 1982. Production Research. Contact Dr. William M. Spurgeon, Division of Mechanical Engineering and Applied Mechanics (357-7540).

Apr. 30, 1982. Biological Instrumentation. Contact Dr. Robert Newburgh, Division of Physiology, Cellular, and Molecular Biology (357-7652).

New Publications of Science Resources Studies

NSF's Division of Science Resources Studies has published the following *Science Resources Studies Highlights* and *Detailed Statistical Tables*. Copies are available free from the Division.

- *Science Resources Studies Highlights,* "Total Federal R&D Funding Estimated to Increase 7 Percent in 1982 After September Revisions" (NSF 81-321) formerly listed under title "March Budget Revisions Raised Defense R&D Support in 1982—Cut all Other Areas"
- *Detailed Statistical Tables*

  Federal Funds for Research and Development, Fiscal Years 1980, 1981, and 1982, Volume XXX (NSF 81-325)

  Academic Science: Graduate Enrollment and Support, Fall 1980 (NSF 81-330)

The following report is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $4.50 per copy. Request stock number 038-000-00484-1.

- *Foreign Participation in U.S. Science and Engineering Higher Education and Labor Markets* (NSF 81-316).

Proposals may be submitted for the following programs at any time of the year. It takes approximately six to nine months to process a proposal. Brochures indicated in parentheses may be ordered on the Publications Order Form.

Division of Behavioral and Neural Sciences

Anthropology. Contact Dr. John Yellen (357-7804).
Linguistics. Contact Dr. Paul Chapin (357-7696).
Memory and Cognitive Processes. Contact Dr. Joseph Young (357-9898).
Neurobiology. Contact Dr. Steven E. Kornguth (357-7471).
Psychobiology. Contact Dr. Fred Stollnitz (357-7949).
Sensory Physiology and Perception. Contact Dr. Terrence Dolan (357-7428).
Social and Developmental Psychology. Contact Dr. Richard Louttit (357-9485).

Division of Environmental Biology

Biological Research Resources. Contact Dr. James Tyler (357-7475).
Doctoral Dissertation Research. Contact Mr. Mark Courtney (357-9598).
Ecosystem Studies. Contact Dr. W. Franklin Harris (357-9596).

Engineering Research Equipment (Brochure NSF 81-31). Contact the appropriate Engineering Division: Electrical, Computer, and Systems Engineering (357-9618); Chemical and Process Engineering (357-9606); Civil and Environmental Engineering (357-9545); and Mechanical Engineering and Applied Mechanics (357-9542). For Administrative inquiries, contact Ms. Janice Apruzese, Directorate for Engineering (357-9834).

Industry/University Cooperative Research Projects (Brochure NSF 80-31). Contact Division of Industrial Science and Technological Innovation: Dr. Frederick Betz (357-7784) or Mr. Alex Schwarzkopf (357-7527).

Research in Information Science and Technology (Brochure NSF 81-34). Contact the Division of Information Science and Technology (357-9572).

Science in Developing Countries. For current guidelines, contact Dr. Gordon Hiebert, Division of International Programs (357-9537).

U.S.-China Cooperative Science. For joint research projects and a very limited number of joint seminars in six areas of basic science: archaeology, astronomy, chemistry of natural products, linguistics, materials science (ceramics, metallurgy and polymers), and systems analysis (decision and management sciences and operations research). For current guidelines, contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

U.S.-East Asia Cooperative Science (Brochure NSF 81-30). For projects with Indonesia, Malaysia, Thailand, and Singapore, contact Dr. Gordon Hiebert, Division of International Programs (357-9537); for projects with Korea and the Philippines, contact Dr. Gerald A. Edwards, Division of International Programs (357-9537).

U.S.-New Zealand Cooperative Science. Letter-proposals for travel costs only for three-week visits for the purpose of developing cooperative research in physical oceanography, marine geology and geophysics, or marine biology. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Staff Changes

Peter G. Brewer to Program Director, Marine Chemistry Program, Ocean Sciences Research Section, Division of Ocean Sciences (357-7910).

H. Lawrence Clark to Program Manager, Oceanographic Technology Program, Oceanographic Facilities Support Section, Division of Ocean Sciences (357-7837).

Judith F. Coakley to Program Analyst, Universities and Nonprofit Institutions Studies Group, R&D Economic Studies Section, Division of Science Resources Studies (634-4629).

J. Allen Holt to Deputy Director, Division of International Programs (357-9565).

Ian D. MacGregor to Chief Scientist, Science Section, Office of Scientific Ocean Drilling (653-9149).

Jane L. Peterson to Assistant Program Director, Developmental Biology Program, Cellular and Physiological Biosciences Section, Division of Physiology, Cellular and Molecular Biology (357-7989).

Harvey B. Willard to Head, Nuclear Science Section, Division of Physics (357-7993).

February 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St. N.W., Washington, D.C. 20550.

Check:

- ☐ NSF 78-66. U.S.-India Exchange of Scientists.
- ☐ NSF 80-31. Industry/University Cooperative Research.
- ☐ NSF 80-49. U.S.-Pakistan Cooperative Science.
- ☐ NSF 80-53. U.S.-India Cooperative Science.
- ☐ NSF 81-30. U.S.-East Asia Cooperative Science.
- ☐ NSF 81-31. Engineering Research Equipment.
- ☐ NSF 81-34. Research in Information Science and Technology.
- ☐ NSF 81-49. U.S.-Australia Cooperative Science.
- ☐ NSF 81-50. U.S.-New Zealand Cooperative Science.
- ☐ SE 80-62. Ethics and Values in Science and Technology.
- ☐ SE 81-62A. Interdisciplinary Incentive Awards. EVIST.
- ☐ SE 81-62B. Sustained Development Awards. EVIST.

Name: _____

Title: _____

Address: _____

_____

Positions Open in NSF

Applicants for the following positiions should submit resumes to NSF, Personnel Administration Branch, Room 212, 1800 G Street, N.W., Washington, D.C. 20550. Attn: Mr. E. Paul Broglio (357-7840). NSF is an Equal Opportunity Employer.

- **NSF's Division of Mathematical and Computer Sciences** is seeking qualified applicants for positions in the mathematical sciences which periodically become available. The positions will be filled on a one- or two-year rotational basis and are excepted from the competitive civil service. The salaries are negotiable and range from $39,689 to $50,112 per annum (GS-14/15 equivalent). The openings are in the fields of classical analysis, modern analysis, applied mathematics, and statistics and probability. An applicant should have a Ph.D. or equivalent experience and training in the appropriate field of mathematics, plus six years of successful scientific research experience in that field. A broad general knowledge of the field and some administrative experience are also required.
- **NSF's Chemistry Division** is seeking qualified applicants for program officer positions in structural chemistry, thermodynamics, dynamics, chemical physics, chemical analysis, and chemical instrumentation for 1982-83. The salaries are negotiable and range from $39,689 to $50,112 (GS-14/15 equivalent). The positions will be filled on a one- or two-year rotational basis and are excepted from the competitive civil service. Applicants should have five years of experience beyond the Ph.D.
- **NSF's Division of Environmental Biology** is seeking qualified applicants for the following positions: 1) associate program director, $33,586 to $50,112 per annum (GS-13/14 equivalent), systematic biology program; 2) program director, $39,689 to $50,112 per annum (GS-14/15 equivalent), ecosystem studies group; and 3) program director, $39,689 to $50,112 per annum (GS-14/15 equivalent), systematic biology program. The positions will be filled on a one- or two-year rotational basis and are excepted from the competitive civil service. Candidates should have six years of experience in the appropriate discipline beyond the Ph.D.

Cooperative Research With East Europe

NSF's East European Cooperative program seeks to foster and support scientific and technological cooperation between the U.S. and Bulgaria, Hungary, and Romania. The program promotes collaboration and exchange of information between scientists, engineers, scholars, and institutions of research and higher learning of the U.S. and the cooperating countries. The Division of International Programs administers activities undertaken under this program in the U.S. and maintains liaison with foreign agencies.

The following general guidelines have been established: 1) Both the U.S. and the foreign country must approve each project. 2) Each country will support the cost of research and other scientific activities taking place within its territory. 3) Contributions to the program by the U.S. and the foreign country involved should be on an approximately 50-50 basis.

The program offers financial support for three types of activities: cooperative research projects, seminars, and scientific visits for planning purposes. Proposals must be submitted to NSF by American institutions, and to the appropriate foreign agency by foreign institutions. Proposals should be prepared according to standard NSF guidelines, but must also contain a section on "International Cooperation," which describes in detail the cooperative aspects of the work plan and the mutual benefits to be obtained. Proposals for joint research seminars should be submitted at least six months before the requested starting date; for short-term visits, three months. Further information may be obtained from the program managers of the East European Cooperative Science program (357-9516).

March 1982 NSB Meeting

The National Science Board will hold its 234th meeting March 18 and 19 in the Board Room (Room 540) of NSF.

Portions of the meeting will be open to the public. Requests for information on the meeting, the schedule, or agendas may be directed to the Office of the National Science Board (357-9582).

National Science Foundation
Washington, D.C. 20550

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bulletin
Vol. 9, No. 7 March 1982
NATIONAL SCIENCE FOUNDATION
WASHINGTON, D. C. 20550

NSF Announcements for March

The March issue of the *NSF Bulletin* contains information on deadlines, meetings, publications, and sources for more detailed information. Publications listed may be obtained on the Publications Order Form. The area code of all telephone numbers listed is 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

Small Business Innovation Research

NSF's Division of Industrial Science and Technological Innovation announces the 1982 Small Business Innovation Research (SBIR) program solicitation. Scientific and high-technology private firms with 500 employees or less may submit advanced applied research proposals in 24 topics, listed below. The program couples NSF research to potential follow-on private venture capital in order to stimulate technological innovation and increase the social and economic return from government-supported research.

SBIR is a three-phase program. Phase I supports research projects up to $30,000 for six months on important scientific or engineering problems or opportunities. Those projects found most promising after Phase I receive Phase II awards, which average $200,000 for one to two years. This is the principal research phase. Phase III is to pursue the industrial applications from Phase II research and is funded entirely with private capital.

This solicitation is for Phase I proposals only. Deadline is April 1, 1982.

The 24 research topics are: materials research, alternative biological resources, marine and freshwater resources, mineral resources, scientific and industrial measurements, microelectronics, computer science and applied mathematics, computer engineering, robotics and controls, information technology, communications and systems, science and technology to aid the handicapped, advanced manufacturing processes, advanced chemical processes, chemistry, biochemical engineering, advanced immunological and microcarrier techniques, food process engineering, water treatment research, atmospheric technology, radiation processing and control, heat transfer, light machinery and components research, and tunneling, drilling, excavation, and dredging.

Copies of the solicitation may be obtained by contacting Mr. Ritchie Coryell, Division of Industrial Science and Technological Innovation (357-7527).

Advisory Committee for Atmospheric Sciences

The Advisory Committee for Atmospheric Sciences will hold its spring meeting April 26 and 27, 1982, in Room 643, NSF. For further information, contact Dr. Eugene Bierly, Division of Atmospheric Sciences (357-9874).

Reorganization of the Division of Earth Sciences

The Division of Earth Sciences (EAR) has been reorganized through the restructuring of the research programs for a more effective managerial structure and to reflect the increasingly interdisciplinary nature of the earth sciences.

The geochemistry, geology, geophysics, and petrology programs are abolished and the following programs established: stratigraphy and paleontology, environmental geosciences, crustal structure and tectonics, seismology and deep earth structure, experimental and theoretical geophysics, petrogenesis and mineral resoures, mantle geochemistry, and experimental and theoretical geochemistry.

For further information, contact the Division office (357-7958).

Field Observing Facility Advisory Panel

The Advisory Panel for the Field Observing Facility (FOF) of the National Center for Atmospheric Research (NCAR) will meet in April 1982 to consider requests for field observing support. FOF operates one S-band (10 cm), and two C-band (5.5 cm) Doppler radars, the Portable Automated Mesonetwork (PAM), and two radiosonde systems.

FOF facilities are committed through the fall of 1982. Requests for use of facilities from Oct. 1, 1982, through May, 1983, should be submitted now. Scientists requesting NCAR field observing support within the context of NSF grants should include those requirements in their NSF proposals.

To be considered by the panel at the April meeting, requests should be submitted by March 1, 1982, addressed to Richard Carbone, Manager, Field Observing Facility, NCAR, P.O. Box 3000, Boulder, CO 80307. For further information, contact Mr. Carbone (303/322-5151).

Change in International Program Deadline

Please note a correction in deadlines listed in the Sept. 1981 *NSF Bulletin*, concerning the U.S.-France Cooperative Science Program. The annual deadline for joint seminar proposals has been changed to May 1 for seminars to be held in the following calendar year.

For further information, contact Dr. Stephen Mosier, Division of International Programs (357-7554).

NS 1.3:

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for publishing this periodical has been approved by the Office of Management and Budget pending review of publishing authority.
Editor: Barbara Tufty, Public Information Branch

Program Deadlines and Target Dates For Proposals

The following listing gives the dates on which proposals for grants are due at NSF in the next three months. It takes approximately six to nine months to process a proposal. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form. These dates are subject to change.

Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

Mar. 1, 1982. Experimental Computer Science. New faculty research grants. Contact the program director, New Faculty Research Grants in Experimental Computer Science, Computer Science Section (357-7345).

Mar. 1, 1982. U.S.-India Cooperative Science (Brochure NSF 80-53). For travel between July 1, and Sept. 30, 1982. Contact Division of International Programs (357-9550).

Mar. 1, 1982. U.S-Pakistan Cooperative Science (Brochure NSF 80-49). For travel between July 1 and Sept. 30, 1982. Contact Division of International Programs (357-9550).

Mar. 15, 1982. U.S.-India Exchange of Scientists (Brochure NSF 78-66). For travel between Nov. 15, 1982 and May 15, 1983. Contact Division of International Programs (357-9550).

Apr. 1, 1982. U.S.-Australia Cooperative Science (Brochure NSF 81-49). Proposals for research visits to Australia beginning any time in 1983. All other proposals, including cooperative research (exchange or no-cost) and joint seminars/workshops, with requested effective dates falling between Jan. 1 and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. U.S.-New Zealand Cooperative Science (Brochure NSF 81-50). For all projects, including cooperative research (short- or long-term visits) and joint seminars/workshops, with requested effective dates falling between Jan. 1, and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. Ethics and Values in Science and Technology. Formal proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

Apr. 1, 1982. U.S.-Japan Cooperative Science. Cooperative research proposals. Deadline does not apply to proposals in marine biology or food productivity. Contact Mr. Charles Owens, Division of International Programs (357-9537).

Apr. 1, 1982. Small Business Innovation Research, For Phase I proposals. Contact Mr. Ritchie Coryell, Division of Industrial Science and Technological Innovation (357-7527).

May 1, 1982. U.S.-France Cooperative Science (Brochure NSF 80-48). Proposals for joint seminars and cooperative research projects to begin in the following calendar year. Contact Dr. Stephen Mosier, Division of International Programs (357-7554).

May 1, 1982. U.S-Latin America and Caribbean Cooperative Science (Brochure NSF 80-52). Proposals for scientific visits, bilateral workshops and supplemental support for cooperative research. Contact Ms. Christine French or Mr. Edward Finn, Division of International Programs (357-9563).

May 1, 1982. U.S.-Scandinavia and the Netherlands Cooperative Science (Finland and Sweden). Cooperative research and workshop/seminars. Contact Mr. Henryk Uznanski, Division of International Programs (357-7554).

May 15, 1982. U.S.-Scandinavia and the Netherlands Cooperative Science (Finland and Sweden). Long-term research visits starting fall semester. Contact Mr. Henryk Uznanski, Division of International Programs (357-7554).

Target Dates for Proposals

Proposals received after this cutoff date will be reviewed although they may miss a particular panel meeting.

Apr. 30, 1982. Biological Instrumentation. Contact Dr. Robert Newburgh, Division of Physiology, Cellular, and Molecular Biology (357-7652).

May 1, 1982. Climate Dynamics. Contact Dr. Alan Hecht, Division of Atmospheric Sciences (357-9892).

May 1, 1982. Earth Sciences: Geology, Geophysics, Geochemistry and Petrology. Contact Dr. Robin Brett, Division of Earth Sciences (357-7958).

May 3, 1982. Ethics and Values in Science and Technology. Preliminary proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

March/April Mosaic

Articles in the March/April issue of *Mosaic* magazine address a general range of subjects:

—Plasmids—the strange, ancillary circles of genetic material that bacteria carry, and their role both in pathology and evolution.

—Science in China—elements of its history, and some reasons for the early divergence of Chinese and European scientific thought.

—Anthopism—a new marriage of philosophy and science; a name being given to efforts to understand the interaction of observers and observed phenomena on the largest and the smallest physical scale.

—Unisexual vertebrates—special vertebrate species that comprise individuals of only a single gender and have the ability to reproduce asexually.

—Thunderstorms—a major effort to understand the forces and phenomena that go into their making.

Subscriptions to *Mosaic* are available at $12 for six issues a year ($15 foreign) from the U.S. Government Printing Office, Wash., D.C. 20402.

Proposals for Oceanographic Instrumentation Development

The Oceanographic Facilities Support Section (OFS) will consider proposals for one-time-only awards for the development and construction of state-of-the-art instrumentation, and data procurement and handling equipment that is applicable to general-use oceanographic research. Support may also be considered for workshops to explore and promote the application of new technology and innovative techniques to oceanography.

Further information may be obtained from Mr. H. Lawrence Clark, Oceanographic Facilities Support Section (357-7837).

International Travel: Biological, Behavioral, and Social Sciences

As announced in the Dec. 1981 issue of the *NSF Bulletin*, applications for support of international travel to scientific meetings will be the responsibility of the research directorates.

Only applications from professional organizations in support of group travel will be considered by the Divisions of the Directorate for Biological, Behavioral, and Social Sciences (BBS). Applications submitted for international travel from individuals will not be considered due to lack of funds in fiscal year 1982.

For further information, contact the BBS unit with responsibility for the area of scientific interest.

Staff Changes

Raymond Bye, Jr. to Head, Congressional Liaison Branch, Office of Government and Public Programs (357-9730).

Yi-tzu Chien to Program Director, Intelligent Systems Program, Computer Science Section, Division of Mathematical and Computer Sciences (357-7345)

James B. Hoehn to Associate Study Director, Universities and Nonprofit Studies Group, R and D Economic Studies Section, Division of Science Resources Studies (634-4630)

Arthur Komar to Program Director, Gravitational Physics Program, Division of Physics (357-7979)

Langley Spurlock to Senior Staff Associate for Operations, Directorate for Mathematical and Physical Sciences (357-9698)

Only One Science: NSB's 12th Annual Report

The 12th annual report of the National Science Board (NSB), *Only One Science*, examines six topics of current interest that represent a spectrum of scientific effort in the physical, biological, medical and social sciences: computers and semicomputers, pesticides and pest control, seismic exploration for oil and gas, survey research and opinion polls, synthetic fibers, and X-rays for medical diagnosis. Each area is traced from its early origins in basic research to its present advanced status.

Copies of the 216-page report, *Only One Science* (NSB 80-1), may be purchased from the U.S. Government Printing Office (GPO), Wash., D.C. 20402. (Requests for price and order may be made by mail or phone to GPO (783-3238).

Science Indicators—1980; NSB's 13th Annual Report

The 13th annual report of the National Science Board (NSB), *Science Indicators—1980*, is the fifth in a series devoted to the assessment of U.S. science and technology through the analysis of quantitative indicators. The report analyzes U.S. science and technology per se and in relation to the efforts of other major countries performing research and development. It also provides information on public attitudes and expectations concerning science and technology, as well as a description of selected recent research accomplishments in areas of astronomy, cognitive science, information flow in biological systems, catalysts and chemical engineering, and communications and electronics.

Copies of the 368-page report, *Science Indicators—1980* (NSB 81-1), may be purchased from the U.S. Government Printing Office (GPO), Wash., D.C. 20402. Requests for price and order may be made by mail or phone to GPO (783-3238).

Development in Science Education: Pre-College Mathematics Education Using Computers

An updated issue of the booklet summarizing the Development in Science Education (DISE) awards made in Pre-College Mathematics Education Using Computers includes projects supported in 1980 and 1981 and selected earlier projects. A limited number of copies are available and may be obtained by requesting publication SE 82-51 on the Publications Order Form.

March 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St. N.W., Washington, D.C. 20550.

Check:

- ☐ NSF 78-66. U.S.-India Exchange of Scientists.
- ☐ NSF 80-31. Industry/University Cooperative Research.
- ☐ NSF 80-48. U.S.-France Cooperative Science.
- ☐ NSF 80-49. U.S.-Pakistan Cooperative Science.
- ☐ NSF 80-52. U.S.-Latin America and Caribbean Cooperative Science.
- ☐ NSF 80-53. U.S.-India Cooperative Science.
- ☐ NSF 81-30. U.S.-East Asia Cooperative Science.
- ☐ NSF 81-31. Engineering Research Equipment.
- ☐ NSF 81-34. Research in Information Science and Technology.
- ☐ NSF 81-49. U.S.-Australia Cooperative Science.
- ☐ NSF 81-50. U.S.-New Zealand Cooperative Science.
- ☐ SE 80-62. Ethics and Values in Science and Technology.
- ☐ SE 82-51. Pre-College Mathematics Education Using Computers. DISE.
- ☐ SE 82-80. Source Book of Projects. SEDR.

Name: _____

Title: _____

Address: _____

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Deadlines Established for U.S.-Federal Republic of Germany and U.S.-Switzerland Cooperative Science Programs

Two competitions will be held for fiscal year 1983 awards under the U.S.-Federal Republic of Germany and U.S.-Switzerland Cooperative Science programs. The corresponding proposal submission deadlines for both programs are June 1, 1982, and Dec. 1, 1982. It takes approximately six to nine months to process a proposal. For further information, including guidelines for preparation of proposals, contact Dr. Warren Thompson, Division of International Programs (357-9700).

Science Education Development and Research: Source Book of Projects

The *Source Book of Projects*, providing information on 1981 awards made in the Science Education Development and Research Division, is presently available. This publication includes reference to all projects supported by this Division during 1978-1981 and to most projects initiated as early as 1975—a total of approximately 450. Ready reference to these projects is provided by a comprehensive key word index derived from titles and descriptive summaries. The book is intended as a continuing reference guide to research and development activity of interest to the scientific and engineering education community. It may be obtained by requesting publication SE 82-80 on the Publications Order Form.

New Publications of Science Resources Studies

NSF's Division of Science Resources Studies has released the following publications. Copies are available free from the Division.

- *Science Resources Studies Highlights:* "Industrial R&D Expenditures in 1980 Show Real Growth for Fifth Consecutive Year" (NSF 81-331)
- *Young and Senior Science and Engineering Faculty, 1980.* Characteristics, Appointments and Departures, and Research Activities (NSF 81-319)

Cooperative Science Programs with Latin America and the Caribbean

NSF through its Division of International Programs supports U.S. investigators in cooperative scientific activities with colleagues in Latin America and the Caribbean. This collaborative research project support is ordinarily supplementary to the primary domestic project support. Seminars and workshops on a specific topic and scientific visits of short duration are also supported. Cooperating foreign scientists must obtain support from other sources, and must submit a matching proposal to their own national science council.

Interested persons may use the Publications Order Form to obtain a copy of the brochure, *Cooperative Science Programs with Latin America and the Caribbean* (NSF 80-52), which explains further the scope, budgetary restrictions, proposal format and other topics particular to the cooperative programs.

The semiannual deadline dates are May 1 and Nov. 1. Direct contact with program staff is encouraged before submission of formal proposals. Dr. Edward Finn (Argentina, Brazil) and Ms. Christine French (Mexico, Venezuela and other countries) may be reached at the Division of International Programs (357-9563).

U.S.-U.S.S.R. Science and Technology Newsletter

The 1981 fall issue of the semiannual publication, U.S.-U.S.S.R. Science and Technology Newsletter, includes news of cooperative activities carried out during the period Oct. 1980 through June 1981 under the Science and Technology Agreement with the Soviet Union. Brief reports are presented from the following science and technology working groups: application of computers to management, corrosion, electrometallurgy and materials, forestry, heat and mass transfer, metrology, microbiology, physics, science policy and water resources.

Copies of the 8-page *Newsletter* (Vol. 4, No. 2) are available by contacting Mr. Gerson Sher, U.S.-U.S.S.R. Joint Commission Support Staff, Division of International Programs (357-7494).

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Vol. 9, No. 8 April 1982

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D. C. 20550

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NSF Announcements for April

The April *NSF Bulletin* contains items on the NSF budget requests, on grants and contracts conditions, and on programs, deadlines, publications and sources for more detailed information. Publications in this *Bulletin* may be obtained on the Publications Order Form. The area code of all telephone numbers listed is 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

NSF Fiscal Year 1983 Budget Request

A total of $1,072.8 million for NSF is included in the proposed budet of the United States for fiscal year 1983.

This represents an increase of $76.6 million or 7.7 percent above the fiscal year 1982 current plan of $996.2 million. The total includes $1,055.6 million for research and related activities, $15 million for graduate research fellowships and $2.2 million for programs supported by available special foreign currencies.

The following key elements are among the important NSF thrusts for fiscal year 1983:

- Major improvements in scientific research instrumentation and laboratories.
- Expansion of cooperation between industry and universities, including provision for the establishment of the sixth Industry/University Cooperative Research Center.
- Support for a new, innovative program in electrical, computer and systems intended to help alleviate science and engineering personnel shortages.
- Increased support of employment of women and racial minorities in science and technology.
- Improvement of training for research careers in science and engineering.

Change in Consultant Rates Under NSF Awards

Article 7, Consultant Services, of NSF Grant General Conditions (F.L. 118 and F.L. 171) limits the payment to individuals for consultant services under NSF grants to the maximum rate paid to a GS-18 Federal employee. This limitation has been in effect for a number of years pursuant to a statutory requirement. As of Jan. 1, 1982 the rate paid to a GS-18 Federal employee was increased to $221 per day. Questions regarding the consultant rate and limitation may be directed to the Policy Office, Division of Grants and Contracts (357-7880).

The following list shows the proposed funding for research and related activities for NSF directorates and programs.

Directorates and Programs	*Proposed Funding*	
	Current Plan FY 1982	*Budget Request FY 1983*
	(Dollars in Millions)	
Mathematical and Physical Sciences	$272.9	$298.7
Engineering	90.8	99.7
Project Transfer to U.S. Geological Survey in FY 1983	1.2	.0
Total Engineering	92.0	99.7
Biological, Behavioral, and Social Sciences	176.0	186.7
Astronomical, Atmospheric, Earth and Ocean Sciences	240.0	259.7
Ocean Drilling Programs	20.0	259.7
U.S. Antarctic Program	66.0	73.0
Transfer to NSF of Responsibility for Icebreaker Support	.0	13.4
Total U.S. Antarctic Program	66.0	86.4
Scientific, Technological, and International Affairs	40.3	44.0
Minority Institutions Science Improvement Program	.0	3.3
Science and Engineering Education	20.9	15.0
Special Foreign Currency	4.6	2.2
Program Development and Management	63.5	63.1
Total NSF	$996.2	$1,072.8

For further information, request News Release NSF PR82-7 on the Publications Order Form.

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for publishing this periodical has been approved by the Office of Management and Budget pending review of publishing authority.
Editor: Barbara Tufty, Public Information Branch

NS 1. 3:

Program Deadlines and Target Dates For Proposals

The following listing gives the dates on which proposals for grants are due at NSF in the next three months. It takes approximately six to nine months to process a proposal. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form. These dates are subject to change.

Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

Apr. 1, 1982. U.S.-Australia Cooperative Science (Brochure NSF 81-49). Proposals for research visits to Australia beginning any time in 1983. All other proposals, including cooperative research (exchange or no-cost) and joint seminars/workshops, with requested effective dates falling between Jan. 1 and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. U.S.-New Zealand Cooperative Science (Brochure NSF 81-50). For all projects, including cooperative research (short- or long-term visits) and joint seminars/workshops, with requested effective dates falling between Jan. 1, and June 30, 1983. Contact Mr. Alan Milsap, Division of International Programs (357-9558).

Apr. 1, 1982. U.S.-Japan Cooperative Science. Cooperative research proposals. Deadline does not apply to proposals in marine biology or food productivity. Contact Mr. Charles Owens, Division of International Programs (357-9537).

Apr. 1, 1982. Small Business Innovation Research, For Phase I proposals. Contact Mr. Ritchie Coryell, Division of Industrial Science and Technological Innovation (357-7527).

May 1, 1982. U.S.-India Cooperative Science. For seminars/workshops to take place Dec. 1, 1982 to May 1, 1983. Contact Dr. Osman Shinaishin, Division of International Programs (357-9402).

May 1, 1982. U.S.-Pakistan Cooperative Science. For seminars/workshops to take place Dec. 1, 1982 to May 1, 1983. Contact Dr. Osman Shinaishin, Division of International Programs (357-9402).

May 1, 1982. U.S.-France Cooperative Science (Brochure NSF 80-48). Proposals for joint seminars and cooperative research projects to begin in the following calendar year. Contact Dr. Stephen Mosier, Division of International Programs (357-7554).

May 1, 1982. U.S-Argentina, Brazil, Mexico, Venezuela and Latin America Regional Cooperative Science (Brochure NSF 80-52). Proposals for project development visits, bilateral workshops and supplemental support for cooperative research. Contact Ms. Christine French or Dr. Edward Finn, Division of International Programs (357-9563).

May 1, 1982. U.S.-Scandinavia and the Netherlands Cooperative Science (Finland and Sweden). Cooperative research and workshop/seminars. Contact Mr. Henryk Uznanski, Division of International Programs (357-7554).

May 15, 1982. U.S.-Scandinavia and the Netherlands Cooperative Science (Finland and Sweden). Long-term research visits starting fall semester. Contact Mr. Henryk Uznanski, Division of International Programs (357-7554).

June 1, 1982. U.S.-Pakistan Cooperative Science (Brochure NSF 80-49). For travel between Oct. 1 and Dec. 31, 1982. Contact Mr. Eugene Pronko, Division of International Programs (357-9550).

June 1, 1982. U.S.-India Cooperative Science (Brochure NSF 80-53). For travel between Oct. 1 and Dec. 31, 1982. Contact Mr. Eugene Pronko, Division of International Programs (357-5550).

June 1, 1982. U.S.-Japan Cooperative Science. For seminars to take place between April 1, 1983 and March 31, 1984. Contact Mr. Charles Owens, Division of International Programs (357-9537).

June 1, 1982. Industry/University Cooperative Research Centers. Contact Mr. Robert Colton or Mr. Alex Schwarzkof, Division of Industrial Science and Technological Innovation (357-7527).

June 1, 1982. U.S.-Federal Republic of Germany and U.S.-Switzerland Cooperative Science. Semi-annual deadline for proposals for joint research and workshops. Contact Dr. Warren Thompson, Division of International Programs (357-9700).

Target Dates for Proposals

Proposals received after this cutoff date will be reviewed although they may miss a particular panel meeting.

Apr. 30, 1982. Biological Instrumentation. Contact Dr. Robert Newburgh, Division of Physiology, Cellular, and Molecular Biology (357-7652).

May 1, 1982. Climate Dynamics. Contact Dr. Alan Hecht, Division of Atmospheric Sciences (357-9892).

May 1, 1982. Earth Sciences. Stratigraphy and Paleontology, Environmental Geosciences, Crustal Structure and Tectonics, Seismology and Deep Earth Structure, Experimental and Theoretical Geophysics, Petrogenesis and Mineral Resources, Mantle Geochemistry, and Experimental and Theoretical Geochemistry. Contact Dr. Robin Brett, Division of Earth Sciences (357-7958).

May 3, 1982. Ethics and Values in Science and Technology. Preliminary proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

June 1, 1982. Alternative Biological Resources. Contact Dr. H. T. Huang, Division of Physiology, Cellular and Molecular Biology (357-9782).

June 1, 1982. Metabolic Biology. Contact Dr. Elijah Romanoff, Division of Physiology, Cellular, and Molecular Biology (357-7987).

Continued On Page Three

Target Dates—Continued

June 1, 1982. United States Antarctic Research. Obtain brochure and proposal preparation kit from Division of Polar Programs before submitting proposal. Contact Mr. Guy Guthridge, Division of Polar Programs (357-7817).

June 15, 1982. Ocean Sciences Research. Contact Dr. Robert Wall, Division of Ocean Sciences (357-7912).

June 15, 1982. Ecology. Contact Dr. Gary Barrett, Division of Environmental Biology (357-9734).

June 15, 1982. Systematic Biology. Contact Dr. Grady Webster, Division of Environmental Biology (357-9588).

June 15, 1982. Population Biology and Physiological Ecology. Contact Dr. Jerry Downhower, Division of Environmental Biology (357-9728).

Proposals may be submitted for the following programs at any time of the year. It takes approximately six to nine months to process a proposal. Brochures indicated in parentheses may be ordered on the Publications Order Form.

Division of Behavioral and Neural Sciences

Anthropology. Contact Dr. John Yellen (357-7804).
Linguistics. Contact Dr. Paul Chapin (357-7696).
Memory and Cognitive Processes. Contact Dr. Joseph Young (357-9898).
Neurobiology. Contact Dr. Steven E. Kornguth (357-7471).
Psychobiology. Contact Dr. Fred Stollnitz (357-7949).
Sensory Physiology and Perception. Contact Dr. Terrence Dolan (357-7428).
Social and Developmental Psychology. Contact Dr. Richard Louttit (357-9485).

Division of Environmental Biology

Biological Research Resources. Contact Dr. James Tyler (357-7475).
Doctoral Dissertation Research. Contact Mr. Mark Courtney (357-9588).
Ecosystem Studies. Contact Dr. W. Franklin Harris or Dr. James Callahan (357-9596).

Division of International Programs

Science in Developing Countries. Contact Dr. Gordon Hiebert (357-9537).
U.S.-China Cooperative Science. Contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, (357-7393).
U.S.-East Asia Cooperative Science (Brochure NSF 81-30). For projects with Indonesia, Malaysia, Thailand, and Singapore, contact Dr. Gordon Hiebert, (357-9537); for projects with Korea and the Philippines, contact Dr. Gerald A. Edwards (357-9537).
U.S.-New Zealand Cooperative Science. Contact Mr. Alan Milsap (357-9558).

Engineering Research Equipment (Brochure NSF 81-31). Contact the appropriate Engineering Division: Electrical, Computer, and Systems Engineering (357-9618); Chemical and Process Engineering (357-9606); Civil and Environmental Engineering (357-9545); and Mechanical Engineering and Applied Mechanics (357-9542). For Administrative inquiries, contact Ms. Janice Apruzese, Directorate for Engineering (357-9834).

Industry/University Cooperative Research Projects (Brochure NSF 80-31). Contact Division of Industrial Science and Technological Innovation: Dr. Frederick Betz (357-7784) or Mr. Alex Schwarzkopf (357-7527).

Research in Information Science and Technology (Brochure NSF 81-34). Contact the Division of Information Science and Technology (357-9572).

April 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St. N.W., Washington, D.C. 20550.

Check:

☐ NSF 78-66. U.S.-India Exchange of Scientists.
☐ NSF 80-31. Industry/University Cooperative Research.
☐ NSF 80-48. U.S.-France Cooperative Science.
☐ NSF 80-49. U.S.-Pakistan Cooperative Science.
☐ NSF 80-52. U.S.-Latin America and Caribbean Cooperative Science.
☐ NSF 80-53. U.S.-India Cooperative Science.
☐ NSF 81-30. U.S.-East Asia Cooperative Science.
☐ NSF 81-31. Engineering Research Equipment.
☐ NSF 81-34. Research in Information Science and Technology.
☐ NSF 81-49. U.S.-Australia Cooperative Science.
☐ NSF 81-50. U.S.-New Zealand Cooperative Science.
☐ NSF PR 82-7. NSF Fiscal Year 1983 Budget Request. News Release.
☐ SE 80-62. Ethics and Values in Science and Technology.
☐ SE 82-28 A/D. Directory of Industrial and Government R&D Facilities.
☐ SE 82-51. Pre-College Mathematics Education Using Computers. DISE.
☐ SE 80-80. Source Book of Projects. SEDR.

Name: _____

Title: _____

Address: _____

_____

U.S.-China Cooperative Science

NSF's U.S.-China Cooperative Science program supports joint research projects and a limited number of joint seminars in six areas of basic science: archaeology, astronomy, chemistry of natural products, linguistics, materials science (ceramics, metallurgy and polymers), and systems analysis (decision and management sciences and operations research). NSF expects to expand the scope of the program to additional fields of science in April or May. For current information and guidelines, contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

Development in Science Education: Pre-College Mathematics Education Using Computers

An updated issue of the (Development in Science Education (DISE) booklet summarizing the awards made in Pre-College Mathematics Education Using Computers has been published. The booklet includes projects supported in 1980 and 1981 and selected earlier projects. A limited number of copies are available and may be obtained by requesting publication SE 82-51 on the Publications Order Form.

NCAR Research Aviation Facility

The Advisory Panel for the Research Aviation Facility of the National Center for Atmospheric Research will meet in Boulder, Colo. in Oct. 1982 to consider requests for flight support using UCAR's four aircraft instrumented for atmospheric research during the period Feb. 1983 through Jan. 1984. Requests for the long-range Electra aircraft will be considered for the period May 1983 through April 1984 to allow sufficient time to organize joint use of the aircraft among several investigators. Programs requesting NCAR flight support within the context of NSF grants should include the NCAR aircraft requirements in the total proposal submitted to NSF.

NCAR operates four aircraft in support of field projects in the areas of air chemistry, cloud physics, air motion (including mass flow and turbulent flux measurements), radiation, oceanography as it relates to boundary layer processes, and other programs within the atmospheric sciences: two twin-engined supercharged unpressurized Queen Airs; a low-wing, twin jet Sabreliner pressurized for high altitude flight; and a large, low-wing, long-range, four-engine turboprop Electra.

The Advisory Panel, composed of atmospheric scientists from universities, government agencies, and NCAR, meets twice each year, in April and Oct., to consider the scheduling of NCAR aircraft.

In order to be considered by the Panel at the 1982 Oct. meeting, requests must be submitted in completed form not later than Aug. 6, 1982 to the Manager, Research Aviation Facility, NCAR, P.O. Box 3000, Boulder, Colo. 80307. For additional information, contact the office at (303) 494-5151 Ext. 7829.

Directory of Industrial and Government R&D Facilities

The Industrial Research Participation program has produced a *Directory of Industrial and Government Research and Development Facilities*. The facilities will provide opportunities for academic science and engineering faculty to participate in ongoing projects during the summer of 1982. Requests for the booklet (SE 82-28A/D) may be made on the Publications Order Form.

NSF Support of Research at Foreign Institutions

The NSF Act recognizes and encourages the international activities of the Foundation. Thus, while NSF both in authority and concept recognizes the international charter of science, NSF rarely provides U.S. dollar support for research by foreign institutions. The number of foreign awards and their dollar value constitute a small fraction of total NSF support of scientific research. However, foreign institutions may obtain financial support through U.S.-owned excess foreign currencies under the Special Foreign Currency Program. Any of the few NSF awards to organizations in foreign countries must include a record of approval by the Secretary of State, so that the authority of NSF to make such awards is exercised in a manner consistent with U.S. foreign policy objectives.

However, NSF's support is chiefly in the U.S.-foreign country cooperative research program mode; NSF supports the U.S. component of selective cooperative activities. Both countries must participate in each project of the program, and each country must both approve and assume full support for its scientists, with costs shared equitably, though not necessarily split for each project. The foreign government would pay the expenses of a foreign research investigation, and NSF would fund the collaborating U.S. scientist in the U.S.

Reorganization of the Division of Earth Sciences

The Division of Earth Sciences was reorganized, effectiv Dec. 17, 1981. The geochemistry, geology, geophysics, anc petrology programs were abolished and the following programs established: stratigraphy and paleontology, environmental geosciences, crustal structure and tectonics, seismology and deep earth structure, petrogenesis and mineral resources, mantle geochemistry, and experimental and theoretical geochemistry. Dr. P. Robin Brett is the Division Director of the Division of Earth Sciences (357-7958).

Reorganization of the Office of Scientific Ocean Drilling

The Office of Scientific Ocean Drilling was reorganized, effective Dec. 18, 1981. The Planning and Management Section was established and the Division of Ocean Drilling Programs abolished.

There are no changes in functions or structure in the Field Operations Office, the Science Section, and the Engineering and Operations Section. Dr. Allen Shinn, Jr. is the Director of the Office of Scientific Ocean Drilling (653-9146).

Revision of NSF Grant General Conditions

In Jan. 1982 NSF began using a newly revised version (Oct. 1981) of the Grant General Conditions (F.L. 118) in grant awards (except those awards under Phase II of the NSF-AAU grant administration experiment where F.L. 171 is applicable). The F.L. 118 revision makes the Grant General Conditions consistent with the March 1981 revision of the Grant Policy Manual and various other issuances as well as updates and clarifies certain provisions. No major substantive changes were made in the requirements or conditions. Questions regarding the changes, NSF Grant General Conditions or the Grants Policy Manual may be directed to the Policy Office, Division of Grants and Contracts (357-7880).

Report on Women and Minorities in Science and Engineering

Latest statistics on women and minorities in science and engineering are contained in a 209-page study, *Women and Minorities in Science and Engineering*. Data represent the years 1974 to 1978 and includes information up to 1980.

This report responds to a Congressional directive asking the NSF to gather such figures every two years. Copies will be available in April from the Superintendent of Documents, Government Printing Office (GPO), Wash., D.C. 20402. Prices may be obtained by contacting GPO (793-3238).

Five Year Outlook on Science and Technology

A newly published report, *The Five Year Outlook on Science and Technology 1981*, describes scientific and technological opportunities in fields affecting national security, industrial productivity, space, health, energy, natural resources, environment, transportation, agriculture, and education. It also discusses a variety of economic and social factors that affect the ability of U.S. science and technology enterprise to address opportunities in these fields.

This report, the second *Five Year Outlook* prepared by NSF, is based largely on background materials provided by the National Research Council, the Social Science Research Council, the American Association for the Advancement of Science, and 23 Federal agencies with major science and technology programs. The first *Five Year Outlook* was published in May 1980.

Two *Source Volumes* accompany the report. *Source Volume I* includes descriptions of developments on the frontiers of selected scientific disciplines, science and natural resources, health and populations, and research institutions. *Source Volume II* consists of discussions of public policy problems associated with science and technology and with current development in social and behavioral science disciplines.

Copies of the *Five Year Outlook* and the two *Source Volumes* are available from the Superintendent of Documents, Government Printing Office (GPO), Wash., D.C., 20402. Prices may be obtained on request from GPO (783-3238).

Science Education Development and Research Source Book of Projects

The *Source Book of Projects*, providing information on the fiscal year 1981 awards made in the Science Education Development and Research Division, is presently available. This publication includes reference to projects supported by this Division in fiscal years 1978 through 1981, and to most projects initiated as early as 1975—a total of approximately 450. Ready reference to these projects is provided by a comprehensive key word index derived from the titles and descriptive summaries. The book is intended as a continuing reference guide to research and development activity of interest to the scientific and engineering education community. The book, SE 82-80, may be requested on the Publications Order Form.

Astronomy Advisory Committee Meeting

The Astronomy Advisory Committee will meet April 5 through 7, 1982 in Room 543 at NSF. For further information, contact Dr. Laura Bautz, Division of Astronomical Sciences (357-9488).

Ecosystem Studies Program: Guidelines for the Preparation of Proposals

Multi-investigator, multi-disciplinary proposals for the ecosystem studies program should be limited to 60 double-spaced pages for the body of the research proposition (including introduction, literature review, hypothesis exposition, methods, project execution and management plan). Appendices of supporting materials (including bibliographies, budgets, professional resumes, catalogs of extant information and related research efforts) should be limited to 40 single-spaced pages. Proposals should be typed on one side only, numbered at the bottom, and should be bound only in the top left corner.

Proposals for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) expressed in *Grants for Scientific Research* (NSF 78-41A).

General format requirements (NSF 78-41A) apply to all proposals.

Proposals not adhering to these guidelines will be returned. For further information, contact Dr. James Callahan, Division of Environmental Biology (357-9596).

Chemistry Advisory Committee Meeting

The Advisory Committee for Chemistry will hold its spring meeting April 29 and 30, 1982, at NSF. Further information may be obtained by calling Dr. Richard Nicholson, Division of Chemistry (357-7947).

Subcommittee for Ocean Sciences Research

The Subcommittee for Ocean Sciences Research will meet April 29 and 30, 1982 at NSF to evaluate proposals being considered for support by the Ocean Sciences Research Section. For further information, contact Dr. Robert Wall, Ocean Sciences Research Section, Division of Ocean Sciences (357-7924).

Staff Changes

Laura Bautz to Acting Division Director, Division of Astronomical Sciences (357-9488).

Richard J. Green to Acting Assistant Director, Directorate for Scientific, Technological, and International Affairs (357-7631).

William W. Hakala to Head, Earthquake Hazards Mitigation Section, Division of Civil and Environmental Engineering (357-9545).

John A. Maccini to Program Director, Environmental Geosciences program, Division of Earth Sciences (357-7866).

Lawrence H. Oliver to Program Manager, Coordinated Experimental Research, Computer Science Section, Division of Mathematical and Computer Sciences (357-7375).

Lawrence K. Randall to Section Head, Astronomy Centers Section, Division of Astronomical Sciences (357-9450).

John L. Snyder to Program Director, Mantle Geochemistry Program, Division of Earth Sciences (357-7866).

Robert J. Stokes to Head, Materials Research Laboratory Section, Division of Materials Research (357-9791).

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WASHINGTON, D. C. 20550

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U. S. GOVT. PUBS.
DEPOSITORY ITEM

NSF Announcements for May

This issue contains information on new NSF programs, on handicap regulations, and on deadlines, meetings, publications, and sources for more detailed information. Publications listed may be obtained on the Publications Order Form. The area code of all telephone numbers listed is 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

NSF Regulations for the Handicapped

The final text of the NSF Handicap Regulations was published in *The Federal Register*, (Vol. 47, No. 40, pp.8570-81), March 1, 1982, effective that same date. A copy of these Regulations is included as an attachment to the Feb. 22, 1982, Important Notice No. 89, *Nondiscrimination on the Basis of Handicap*. The Notice also includes the revised GPM 703 "Rehabilitation Act" of the NSF *Grant Policy Manual*.

According to the Regulations, submission of an assurance form for the handicapped is not required by the grantee institution. All financial assistance type awards after March 1, 1982, contain a special condition under which NSF considers acceptance of the award as assurance that grantee institutions will carry out their obligations under the "Rehabilitation Act".

Questions concerning the Regulations should be addressed to Mr. Perry Hooks, Office of Equal Opportunity, NSF (357-9867); those concerning the GPM 703 revision should be addressed to Mr. Frank Naughten, Policy Office, Division of Grants and Contracts (357-7880).

Copies of NSF Important Notice No. 89 may be requested on the Publications Order Form.

Visiting Professorships for Women in Science and Engineering

The new program, Visiting Professorships for Women in Science and Engineering, has been established to develop and encourage careers in research for women in science and engineering and to provide greater visibility for women scientists and engineers employed in industry, government, or academic research. Awards will be made to women who hold doctorates in science and engineering fields normally supported by NSF (or who have equivalent experience) and who have independent research experience in academic, industrial, or public sectors. The visiting professors will spend up to 24 months actively participating in the research and teaching programs of their host institutions.

Information about the program and plans for fiscal year 1983 may be obtained from Ms. M. Joan Callanan, Office of Planning and Resources Management (357-7734).

Decision and Management Science

On Feb. 19, the National Science Board unanimously approved the establishment of the Decision and Management Science program in the Division of Social and Economic Science. This program supports theoretical and empirical research on decision and management structures, processes, models and methods. Results are intended to provide a broad scientific knowledge base that can be drawn on to enhance the performance of public and private sector organizations and systems. Examples of research areas include: theoretical and empirical investigations of the gap between formal theories of decision and management and the findings of organizational and behavioral research; tests of new theories, models, and methods for decision and management that incorporate the influence of behavioral and social factors; new extensions of research models and methods from other sciences to the social and behavioral factors involved in decisions and management, and the synthesis and refinement of empirical theories, findings, and methods in the field.

The target date for proposals for fiscal year 1982 funds is May 15, 1982. Expected target dates for proposals for fiscal year 1983 funding are Sept. 1, 1982 and Feb. 1, 1983. For further information, contact Dr. Trudi Miller, Division of Social and Economic Science (357-7569).

Office of Interdisciplinary Research

The Office of Interdisciplinary Research (OIR) was established in Nov., 1981, to facilitate and coordinate the support of interdisciplinary research by NSF. OIR undertakes activities to identify potential research areas and to stimulate quality interdisciplinary research proposals.

In addition, in cooperation with NSF program directors, OIR develops and supports special studies, conferences, workshops, and interdisciplinary state-of-the-art review papers in efforts to identify societal or scientific and engineering problems, research gaps, and needs.

Researchers interested in conducting interdisciplinary conferences or workshops, or in obtaining further information about OIR are invited to contact Dr. Judy Coakley, Office of Interdisciplinary Research (357-9707).

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through March 31, 1984. Editor: Barbara Tufty, Public Information Branch

NS 1.3:

Program Deadlines and Target Dates For Proposals

The following listing gives the dates on which proposals for grants are due at NSF in the next three months. It takes approximately six to nine months to process a proposal. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form. These dates are subject to change.

Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

May 1, 1982. U.S.-India Cooperative Science. For seminars/workshops to take place Dec. 1, 1982 to May 1, 1983. Contact Dr. Osman Shinaishin, Division of International Programs (357-9402).

May 1, 1982. U.S.-Pakistan Cooperative Science. For seminars/workshops to take place Dec. 1, 1982 to May 1, 1983. Contact Dr. Osman Shinaishin, Division of International Programs (357-9402).

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June 1, 1982. Industry/University Cooperative Research Centers. Contact Mr. Robert Colton or Mr. Alex Schwarzkof, Division of Industrial Science and Technological Innovation (357-7527).

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Continued On Page Four

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May 1, 1982. Earth Sciences. Stratigraphy and paleontology, environmental geosciences, crustal structure and tectonics, seismology and deep earth structure, experimental and theoretical geophysics, petrogenesis and mineral resources, mantle geochemistry, and experimental and theoretical geochemistry. Contact Dr. Robin Brett, Division of Earth Sciences (357-7958).

May 1, 1982. Ethics and Values in Science and Technology. Preliminary proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

May 15, 1982. Decision and Management Science. Contact Dr. Trudi Miller, Division of Social and Economic Science (357-7569).

June 1, 1982. Alternative Biological Resources. Contact Dr. H. T. Huang, Division of Physiology, Cellular and Molecular Biology (357-9782).

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June 15, 1982. Ecology. Contact Dr. Gary Barrett, Division of Environmental Biology (357-9734).

June 15, 1982. Systematic Biology. Contact Dr. Grady Webster, Division of Environmental Biology (357-9588).

June 15, 1982. Population Biology and Physiological Ecology. Contact Dr. Jerry Downhower, Division of Environmental Biology (357-9728).

July 1, 1982. Biochemistry. Contact Dr. Michael Cusanovich, Division of Physiology, Cellular, and Molecular Biology (357-7945).

July 1, 1982. Biophysics. Contact Dr. Arthur Kowalsky, Division of Physiology, Cellular, and Molecular Biology (357-7777).

July 1, 1982. Cell Biology. Contact Dr. Jack Pate, Division of Physiology, Cellular, and Molecular Biology (357-7474).

July 1, 1982. Cell Physiology. Contact Dr. Joseph Albright, Divison of Physiology, Cellular, and Molecular Biology (357-7377).

Continued On Page Four

Proposals may be submitted for the following programs at any time of the year. It takes approximately six to nine months to process a proposal. Brochures indicated in parentheses may be ordered on the Publications Order Form.

Division of Behavioral and Neural Sciences

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Linguistics. Contact Dr. Paul Chapin (357-7696).

Memory and Cognitive Processes. Contact Dr. Joseph Young (357-9898).

Neurobiology. Contact Dr. Steven E. Kornguth (357-7471).

Psychobiology. Contact Dr. Fred Stollnitz (357-7949).

Sensory Physiology and Perception. Contact Dr. Terrence Dolan (357-7428).

Social and Developmental Psychology. Contact Dr. Richard Louttit (357-9485).

Division of Environmental Biology

Biological Research Resources. Contact Dr. James Tyler (357-7475).

Doctoral Dissertation Research. Contact Mr. Mark Courtney (357-9588).

Ecosystem Studies. Contact Dr. W. Franklin Harris or Dr. James Callahan (357-9596).

Division of International Programs

Science in Developing Countries. Contact Dr. Gordon Hiebert (357-9537).

U.S.-China Cooperative Science. For joint research projects and a limited number of joint seminars in six areas of basic science: archaeology, astronomy, chemistry of natural products, linguistics, materials sciences (ceramics, metallurgy and polymers), and systems analysis (decision and management sciences and operations research). NSF expects to expand the scope of the program to additional fields of science by May. For current information and guidelines, contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

U.S.-East Asia Cooperative Science (Brochure NSF 81-30). For projects with Indonesia, Malaysia, Thailand, and Singapore, contact Dr. Gordon Hiebert (357-9537); for projects with the Philippines, contact Dr. Gerald A. Edwards (357-9537).

U.S.-New Zealand Cooperative Science. Contact Mr. Alan Milsap (357-9558).

U.S.-East Europe Cooperative Science. Contact Miss Deborah Wince (357-9516).

Engineering Research Equipment (Brochure NSF 81-31). Contact the appropriate Engineering Division: Electrical, Computer, and Systems Engineering (357-9618); Chemical and Process Engineering (357-9606); Civil and Environmental Engineering (357-9545); and Mechanical Engineering and Applied Mechanics (357-9542). For Administrative inquiries, contact Ms. Janice Apruzese, Directorate for Engineering (357-9834).

Industry/University Cooperative Research Projects (Brochure NSF 80-31). Contact Division of Industrial Science and Technological Innovation: Dr. Frederick Betz (357-7784) or Mr. Alex Schwarzkopf (357-7527).

Research In Information Science and Technology (Brochure NSF 81-34). Contact the Division of Information Science and Technology (357-9572).

May 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St., N.W., Washington, D. C. 20550.

Check:

- ☐ NSF 80-31. Industry/University Cooperative Research.
- ☐ NSF 80-42. Minority Research Initiation.
- ☐ NSF 80-48. U.S.-France Cooperative Science.
- ☐ NSF 80-49. U.S.-Pakistan Cooperative Science.
- ☐ NSF 80-52. U.S.-Latin America and Caribbean Cooperative Science.
- ☐ NSF 80-53. U.S.-India Cooperative Science.
- ☐ NSF 81-30. U.S.-East Asia Cooperative Science.
- ☐ NSF 81-31. Engineering Research Equipment.
- ☐ NSF 81-34. Research in Information Science and Technology.
- ☐ NSF 81-82. Extramural Research.
- ☐ Important Notice No. 89. Nondiscrimination on the Basis of Handicap.
- ☐ SE 80-62. Ethics and Values in Science and Technology.

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Program Deadlines—Continued

July 1, 1982. U.S.-Republic of Korea Cooperative Science (Brochure NSF 81-30). This is a new deadline. Proposals received prior to July 1, 1982, will be handled individually on a case by case basis. Proposals for cooperative research in biochemical engineering, marine science, and other areas; short-and long-term visits; and seminars. Contact Dr. Gerald A. Edwards, Division of International Programs (357-9537).

July 1, 1982. Oceanographic Facilities and Support. Contact Mr. Ronald La Count, Division of Ocean Sciences (357-7837).

July 15, 1982. Materials Research Laboratories. Contact Dr. William Oosterhuis, Division of Materials Research (357-9791).

Target Dates—Continued

July 1, 1982. Developmental Biology. Contact Dr. Susan Bryant, Division of Physiology, Cellular, and Molecular Biology (357-7989).

July 1, 1982. Genetic Biology. Contact Dr. DeLill Nasser, Division of Physiology, Cellular, and Molecular Biology (357-9687).

July 1, 1982. Regulatory Biology. Contact Dr. Bruce Umminger, Division of Physiology, Cellular, and Molecular Biology (357-7975).

National Science Board 235th Meeting; Waterman, Bush Awards

The National Science Board (NSB) will hold its 235th (32nd annual) meeting on May 20 and 21 in the Board Room of NSF (Room 540).

Portions of the meeting will be open to the public. Requests for information on the meeting, the schedule, or agendas may be directed to the Office of the National Science Board (357-9582).

At the annual NSB dinner, May 19, the seventh annual Alan T. Waterman Award and the third Vannevar Bush Award will be presented. Named in honor of NSF's first Director, the Alan T. Waterman Award is given annually to an outstanding young research worker whose accomplishments in any field of science, mathematics, or engineering show exceptional promise of significant future achievement. Named after the principal originator of NSF, the Vannevar Bush Award is given to a senior statesman of science and technology, who through public service activities in science and technology, has made an outstanding contribution toward the welfare of mankind and the Nation.

Any questions should be directed to Ms. Margaret Windus, Executive Officer, NSB (357-9582).

Minority Research Initiation

NSF has continued funding for the Minority Research Initiation program for fiscal year 1982. This program, initiated in fiscal year 1981, provides support for any college or university minority faculty who are nationals of the U.S. and who wish to establish research efforts on their campuses. Eligible faculty are those who are not presently receiving and have not received any prior Federal research support as faculty members. For additional information, request program announcement NSF 80-42 on the Publications Order Form or contact Dr. Roosevelt Calbert, Division of Program Development (357-7350).

Division of Policy Research and Analysis

An updated issue of the *Program Announcement for Extramural Research* describes the current extramural research interests of the Division of Policy Research and Analysis (PRA) on science and technology policy issues of national concern in the following areas: socioeconomic effects of science and technology; environment, energy, and resources; and technology assessment and risk analysis.

Formal proposals may be submitted at any time during the year, but those submitted prior to Jan. 1 will have the greatest likelihood of being funded during that fiscal year. Approxiamtely six months should be allowed for review and decision following the receipt by NSF of a formal proposal. Applicants are encouraged to submit letters of interest and preliminary proposals to the Division before developing formal proposals.

For further information, request the *Program Announcement for Extramural Research* (NSF 81-82) on the Publications Order Form, or contact Mrs. Agnes Rhodes, Division of Policy Research and Analysis (357-9689).

Staff Changes

Alvin B. Biscoe to Staff Associate, Office of the Assistant Director, Directorate for Scientific, Technical and International Affairs (357-7791).

M. Joan Callanan to Program Coordinator, Visiting Professorships for Women in Science and Engineering, Division of Program Development, Office of Planning Resources Management (357-7734).

Mary E. Clutter to Head, Cellular and Physiological Biosciences Section, Divison of Physiology, Cellular and Molecular Biology (357-7905).

Alan M. Gaines to Program Director, Experimental and Theoretical Geochemistry Program, Division of Earth Sciences (357-7498).

Jean B. Intermaggio to Program Director, Social and Developmental Psychology Program, Division of Behavioral and Neural Sciences (357-7564).

Lewis H. Nosanow to Head, Condensed Matter Sciences Section, Division of Materials Research (357-9787).

Polly Ann Penhale to Assistant Program Director, Biological Oceanography Program, Ocean Sciences Research Section, Division of Ocean Sciences (357-9600).

John L. Snyder to Program Director, Mantle Geochemistry Program, Division of Earth Sciences (new phone listing: 357-7916).

Edward C. Weiss to Acting Division Director, Division of Information Science and Technology (357-9572).

Robert M. Wellek to Program Director, Thermodynamics and Transport Phenomena, Division of Chemical and Process Engineering (357-9606).

Margaret L. Windus to Executive Officer, National Science Board (357-9582).

Advisory Committee for Materials Research

The executive subcommittee of the advisory committee for Materials Research will meet May 13, 14, and 15, 1982, at NSF, Room 540. For further information, contact Dr. Lewis Nosanow, Division of Materials Research (357-9794).

Positions Open in NSF

Applicants for the following positions should submit current resumes to NSF, Personnel Administration Branch, Room 212, 1800 G Street, N.W., Washington, D.C. 20550, Attn: Mr. E. Paul Broglio (357-7840). NSF is an Equal Opportunity Employer.

- **NSF's Division of Chemical and Process Engineering** is seeking qualified applicants for the position of program director, Separation Processes program, for a one- or two-year rotational assignment to be filled before Aug. 31, 1982. This program supports research on the separation technology needed by the chemical process industry. A broad array of separation processes are considered, such as solid-solid, solid-liquid, solid-gas, liquid-liquid, liquid-gas, gas-gas, and gas-solid-liquid separations. Responsibilities include program planning and budgeting, proposal evaluation, grant administration, as well as liaison with other NSF programs and Federal agencies. Contacts with the research community are maintained through site visits and attendance at professional meetir.gs. Salary ranges from $39,689 to $57,500 depending upon qualifications. Applicants should have a doctoral dgree in chemical engineering or closely related fields and considerable research background. Teaching and industrial experiences are desirable, but not absolutely required.

- **NSF's Division of Environmental Biology** is seeking qualified applicants for the position of deputy division director. This position, which will be filled on a career or rotational basis, is part of the Senior Executive Service with a salary ranging from $54,755 to $59,119 (currently limited to $58,500 per annum). Applicants must have a Ph.D. or equivalent professional experience or a combination of education and equivalent experience in a field related to the purview of the Division. Substantial research experience is required, as well as strong evidence of scholarship in disciplines related to systematics, ecology, ecosystem studies and/or population biology and physiological ecology. Also essential are: 1) supervisory and managerial experience, 2) experience in planning research programs, and 3) experience in providing liaison and/or coordinating science activities within own organization and with other institutions or agencies. All applications must be received by April 14, 1982.

- **NSF's Division of Social and Economic Science** is seeking qualified applicants for the position of program director, Law and Social Sciences program. This is a rotational assignment for two years and will begin mid-summer 1982. The position is excepted from the competitive civil service. Salary ranges from $39,689 to $57,500 depending upon qualifications. Candidates should have a Ph.D. or equivalent experience and be currently active in the field. Some supervisory or management experience is desirable. Responsibilities include evaluating research proposals, choosing specialist reviewers, negotiating budgets, preparing the documentation on grants and declines, and traveling to conferences, workshops and seminars. Applicants for the following positions should contact Margaret Cademartori, Division of Personnel and Management (357-7857) to request a vacancy announcement containing additional qualification requirements and application procedures.

- **NSF's Division of Social and Economic Science** is seeking qualified applicants for the position of division director. This position, which will be filled on a rotational basis, is part of the Senior Executive Service with a salary ranging from $56,936 to $59,119 (currently limited to $58,500 per annum). Applicants must have a Ph.D. or equivalent experience in the social and economic sciences. Substantial research experience and strong evidence of scholarship in social and economic science are required. Also essential are: 1) supervisory and managerial experience, 2) experience in planning diverse research programs, and 3) experience coordinating with representatives of scientific and academic communities. All applications must be received by April 23, 1982.

- **NSF's Division of Civil and Environmental Engineering** is seeking qualified applicants for positions in the Earthquake Hazard Mitigation Section, which periodically become available. The positions will be filled on a one- or two-year rotational basis and are excepted from the competitive civil service. Salary ranges from $39,689 to $57,500 depending upon qualifications. The openings are in the field of geotechnical engineering and structural analysis and design. Applicants should have a Ph.D. or equivalent experience and training in the appropriate field of civil engineering, plus six years of successful research experience in that field. A broad general knowledge of the field and some administrative experience are also required.

- **NSF's Divison of Mechanical Engineering and Applied Mechanics** is seeking qualified applicants for the position of deputy division director. This position, which will be filled on a career or rotational basis, is part of the Senrior Executive Service with a salary ranging from $54,755 to $59,119 (currently limited to $58,500 per annum). Applicants must have a Ph.D. or equivalent experience in mechanical engineering or applied mechanics. Substantial research experience is required, as well as strong evidence of scholarship in mechanical engineering or applied mechanics. Also essential are: 1) supervisory and managerial experience, 2) experience in planning research programs, and 3) experience coordinating with representatives of scientific, engineering, and academic communities. All applications must be received by May 28, 1982.

- **NSF's Division of Physiology, Cellular and Molecular Biology** is seeking qualified applicants for the position of section head, Molecular and Genetic Biosciences Section. This position, which will be filled on a career or rotational basis, is part of the Senior Executive Service with a salary ranging from $54,755 to $59,119 (currently limited to $58,500 per annum). Applicants must have a Ph.D. or equivalent professional experience or a combination of education and equivalent experience in the biological sciences. Substantial research experience is required, as well as strong evidence of scholarship in one or more areas of molecular and genetic biosciences. Also essential are: 1) supervisory and managerial experience, 2) experience in planning scientific programs, and 3) experience in providing liaison and/ or coordinating science activities within own organization and with other institutions or agencies. All applications must be received by April 30, 1982.

Ecosystem Studies: Guidelines for the Preparation of Proposals

Multi-investigator, multi-disciplinary proposals for the ecosystem studies program should be limited to 60 double-spaced pages for the body of the research proposition (including introduction, literature review, hypothesis exposition, methods, project execution and management plan). Appendices of supporting materials (including bibliographies, budgets, professional resumes, catalogs of extant information and related research efforts) should be limited to 40 single-spaced pages. Proposals should be typed on one side only, numbered at the bottom, and should be bound only in the top left corner.

Proposals for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) described in *Grants for Scientific Research* (NSF 78-41A). General format requirements described in the *Grants* brochure apply to all proposals.

Proposals not adhering to these guidelines will be returned. For further information, contact Dr. James Callahan, Division of Environmental Biology (357-9596).

U.S.-Israel Binational Science Foundation

This year's deadline for receipt of proposals by the Binational Science Foundation in Jerusalem, previously announced as Dec. 1, 1982, has been advanced to Nov. 15, 1982. Inquiries from U.S. scientists and engineers in fields of research supported by NSF should be directed to Dr. R. R. Ronkin, Division of International Programs (357-7613).

Report on Polymer Science and Engineering

Copies of a comprehensive report, *Polymer Science and Engineering: Challenges, Needs, and Opportunities*, are now available.

The report, prepared under NSF support by a panel of the Committee on Chemical Sciences and the Solid State Sciences Committee of the National Research Council, covers research opportunities; national needs; research in universities, industry, and government; and the status of polymer education. For further information, contact Dr. Norbert Bikales, Division of Materials Research (357-9789).

May/June Mosaic

The May/June issue of the NSF bimonthly magazine, *Mosaic*, is a theme issue dealing with the subject of plant sciences. It carries articles on genetic engineering, cell culture, photosynthesis and photorespiration, adaptation to stress, plant evolution, and the concerns of industry and universities in these areas.

For a sample copy, write to *Mosaic*, NSF. For a subscription ($12 a year; $15 overseas), write to the U.S. Government Printing Office, Wash., D.C. 20402.

Errata in Budget Statement

The April issue of the NSF *Bulletin* erroneously printed $259.7 (dollars in millions) as the Budget Request of the Ocean Drilling Program for Fiscal Year 1983. The accurate figure is $14.0 (dollars in millions).

May 1982 NSF Bulletin Volume 9 Number 9

National Science Foundation
Washington, D.C. 20550

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NSF Announcements for June, July, August

This issue of the NSF *Bulletin* contains information on program deadlines, publications, and other NSF activities for the summer months of June, July, and August. The next issue of the Bulletin will appear for September 1982. Telephone numbers are given in parentheses; all numbers are the Washington, D.C. area code 202, unless otherwise indicated.

The address of the National Science Foundation is 1800 G St., N.W., Washington, D.C. 20550.

Establishment of the Office of Scientific and Engineering Personnel and Education

The Office of Scientific and Engineering Personnel and Education (OSEPE) was established March 21, 1982. Concurrently, the Directorate for Science and Engineering Education was disestablished.

The new Office is the principal focal point on all aspects of scientific and engineering personnel and education policy and programming. It consists of two sections:

1) The Fellowships Section, responsible for the Graduate Fellowships program, the Minority Graduate Fellowships program, the NATO Postdoctoral Fellowships program, and travel grants to NATO Advanced Study Institutes.

2) The Awards Administration and Liaison Section, responsible for management oversight and administration of major active awards funded by the Directorate for Science and Engineering Education, and liaison with other NSF units, government agencies and the public.

Dr. Walter L. Gillespie is Office Director (282-7922) and Dr. Alphonse Buccino is Deputy Office Director (282-7920). Dr. Terence Porter is Head, Fellowships Section (282-7786). Dr. Lewis Gist is Special Assistant to the Office Director, with responsibility for administration of the Resource Centers in Science and Engineering program and the Research Apprenticeships for Minority High School Students program (282-7754).

National Magnet Laboratory

The Francis Bitter National Magnet Laboratory (NML) can provide magnetic fields up to 30 Tesla in a variety of configurations. For information concerning experiments, contact the Director, Dr. Peter Wolff, Francis National Magnet Laboratory, 170 Albany St., Cambridge, MA 02139 (617/253-1557).

New Grant Renewal System for Atmospheric Sciences

NSF's Division of Atmospheric Sciences is undertaking an experiment for renewing existing grants with the goals of reducing rising costs and mounting paperwork. This experiment is based on a similar experiment initiated and carried out by NSF's Division of Chemistry.

Investigators seeking grant renewals from the Division of Atmospheric Sciences with starting dates after Oct. 1, 1982, will have the option of submitting 1) a traditional proposal or 2) a set of recent publications on work under this present grant and a short statement on future research directions.

The experiment will determine whether use of accomplishment-based proposals can reduce workload for both investigators and reviewers, while retaining the effectiveness of peer review.

The scientific merit of the proposed work will be judged by procedures presently in use. Reviewers will place special emphasis on creativity and productivity as indicated by past accomplishments for the new type proposal. Reviewers will be informed about the nature and purpose of the NSF experiment. Principal investigators who are approaching the end of a grant will be notified that they may submit their proposals under the new format.

This new system should provide better, more direct accountability of research funds by examining the productivity of investigators. It should also save time and duplication of work by proposers and reviewers. The system also should be more responsive to changes in research direction, allowing researchers to follow unexpected ideas not expressed in their original proposal.

For further information on this experiment, call Dr. Richard Greenfield, Grant Programs Section, Division of Atmospheric Sciences (357-7645).

The *NSF Bulletin* is issued monthly (except July and August) to disseminate information on NSF programs, policies, and activities. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through March 31, 1984. Editor: Barbara Tufty, Public Information Branch

NS 1. 3:

NSF-Industry Cooperation for Science and Engineering Education Using Computers

The Development in Science Education (DISE) program will be using computers and related hardware donated by industry as the equipment portion of projects supported in fiscal year 1982, the last year of the DISE program. This is the first NSF program to have the authority to use gifts as part of its program resources.

The activity will address national concerns for improving science and engineering education at 10th, 11th, and 12th grade and introductory college levels.

Proposals are encouraged for innovative approaches which anticipate requirements for science and engineering education in the late 1980's and 1990's and the capabilities of future generations of information technology. Proposing organizations are required to match funds requested from NSF and industry.

Deadline for the receipt of proposals is July 6, 1982. Guidelines for the preparation of proposals (NSF 82-20A) and Flier (NSF 82-20B) may be requested on the Publications Order Form. For further information, write the Office of Scientific and Engineering Personnel and Education, Award Administration and Liaison Section, NSF.

Coordinated Experimental Research

The Division of Mathematical and Computer Sciences is continuing its effort to stimulate experimental computer research through various activities of the Coordinated Experimental Research (CER) program. NSF has made five CER awards in previous years and expects to make four or five more during the current fiscal year 1982. The goal of this program is to provide support for the establishment of major experimental facilities including equipment, maintenance costs, and technical support staff, and for large multi-investigator projects in experimental computer science reseach. Grants made under this program are normally five years in duration.

Proposals are currently being accepted for the fiscal year 1983 CER program. Criteria used to evaluate proposals are the standard NSF criteria given in the brochure, *Grants for Scientific and Engineering Research* (NSF 81-79). Particular emphasis is placed on the scientific merit of the proposed work plan, the technical abilities and qualifications of the performer, and the potential for future accomplishment.

The deadline for proposals for fiscal year 1983 is Sept. 15, 1982. For more information, contact Dr. W. Richards Adrion, Computer Science Section (357-7375).

NSB Meeting for June and August

The National Science Board will hold its 236th meeting on June 16 to 18 at the University of California, San Diego, Calif. The June long-range planning meeting has for several years been held at a site away from Wash., D.C. to permit Board members to give greater attention to significant issues as they affect policies and the future development of NSF.

The Board will hold its 237th meeting on August 19 and 20 in Room 545, NSF.

Portions of both meetings will be open to the public. Requests for information on the meetings, schedules, or agendas may be directed to the Office of the National Science Board (357-9582).

A Compendium of Working Papers on Science, Technology and Economic Revitalization

In assisting the Office of Science and Technology Policy prepare the President's recent *Annual Science and Technology Report to the Congress*, NSF convened a series of panels during the fall, 1981, to explore the policy implications of current and emerging issues in science and technology. The panel deliberations are summarized in eight working papers, assembled in a compendium, *Science, Technology and Economic Revitalization*.

Titles of these papers are: Space Commercialization; Genetic Engineering; Industrial Robotics; Industrial Research, Development and Innovation; Contributions of Social Science to Innovation and Productivity; Scientific Instrumentation Obsolescence; U.S. Engineering Education; and International Cooperation in Science and Technology.

The papers focus on three themes related to the President's goal of revitalizing the economy: 1) the shared responsibility of the public and private sectors for maintaining the strength of the U.S. science and technology base; 2) contributions of science and technology to industrial innovation, productivity and economic growth; and 3) the changing international context of U.S. science and technology.

Copies of *Science, Technology and Economic Revitalization* (NSF 82-27) may be requested on the Publications Order Form.

Conference on Physico-Chemical Hydrodynamics

The Conference on Physico-Chemical Hydrodynamics IV, will be held June 14 to 17, 1982, at the Roosevelt Hotel in New York City. Research specialists will meet to discuss the following subjects: interfacial mechanics and multiphase systems; theory of turbulence and its applications; transport phenomena and chemical reacting systems; low Reynolds number flow; hydrodynamics and biological and polymeric systems; and electrochemisty.

The program will consist of plenary and invited lectures given by internationally known experts as well as contributed papers in concurrent technical sessions. The sponsors, the New York Academy of Sciences, will publish and distribute the monograph resulting from this Conference.

Further information may be obtained by contacting the chairman of the Conference, Prof. Benjamin Levich, Dept. of Chemical Engineering, City Univ. of N.Y. (212/690-8157) or Dr. Robert Wellek, Division of Chemical and Process Engineering, NSF (357-9606).

Basic Science of the System of Humanity and Nature

The proceedings of a workshop on the research needs for a basic science of the system of humanity and nature, held in May, 1981, at the Univ. of Florida's Center for Wetlands, have recently become available. The proceedings contain contributions by participants seeking to build a basic, more fundamentally sound foundation for understanding and practicing environmental design and engineering in ways consistent and compatible with natural law.

Single copies of the proceedings, entitled *Research Needs for a Basic Science of the System of Humanity and Nature and Appropriate Technology for the Future*, may be obtained free by writing to Dr. Edward Bryan, Division of Civil and Environmental Engineering, Rm. 1128, NSF.

National Synchrotron Radiation Facilities

NSF's Division of Materials Research provides support for the operation of the national user facilities listed below. Access to these facilities are provided without charge to the user.

Three synchrotron radiation facilities provide monochromatic radiation spanning the electromagnetic spectrum from the ultraviolet through the X-ray region for a wide variety of experiments including electron photoemission, absorption, fluorescence and diffraction experiments.

For further information, contact the facility directors listed below.

Dr. Ednor Rowe, Director, Wisconsin Synchrotron Radiation Center, 3725 Schneider Dr., Route 4, Stoughton, WI 53589 (608/873-6651)

Dr. Arthur Bienenstock, Director, Stanford Synchrotron Radiation Laboratory, SLAC, P. O. Box 4349 Bin 69, Stanford, CA 94305 (415/854-9300 Ext. 3153)

Dr. Boris Batterman, Director, Cornell High Energy Synchrotron Source, Department of Applied Physics, Clark Hall, Cornell University, Ithaca, NY 14853 (607/256-7163)

Annual Science and Technology Report, 1981

A comprehensive statement of the Administration's national science and technology policy is presented in the report, *Annual Science and Technology Report to the Congress, 1981*. The report, transmitted by the President to the Congress, was prepared by the Office of Science and Technology Policy in cooperation with NSF.

Overall guidelines for the nation's science and technology policy are described, as well as major decisions and actions taken within the past year. Nine issues of particular interest to the Administration are emphasized: science and engineering education; scientific instrumentation obsolescence; the role of federal laboratories; stimulating industrial research, development, and innovation; military research and development; space science and technology; nuclear energy; genetic engineering; and international cooperation in science and technology. In addition, major research and development programs of the Federal Government are reviewed in areas such as national security, space, health, energy, natural resources, transportation, agriculture, and the environment. The Office of Management and Budget's special analysis of research and development funding in the President's fiscal year 1983 budget is reprinted as an appendix.

The report will be available by late June from the Government Printing Office, Wash., D.C. 20402. Price and stock number may be obtained by calling NSF's Office of Forms and Publications (357-7861).

Nominations for the 1983 Alan T. Waterman Award

The deadline for receipt of nominations for the 1983 Alan T. Waterman Award is Dec. 31, 1982. The Award, presented annually to an outstanding young scientist, mathematician or engineer, will be announced and presented in May 1983. For further information and/or copy of the guidelines for submission, contact Mrs. Lois Hamaty, Office of Planning and Resources Management (357-7512).

U.S.-China Cooperative Sciences Program

At the annual meeting of the U.S.-China Joint Working Group on Cooperation in the Basic Sciences, held in April, 1982, NSF and its three Chinese cooperating organizations (the Chinese Academy of Sciences, the Chinese Academy of Social Sciences, and the Ministry of Education) agreed to expand the scope of the U.S.-China Cooperative Sciences program by adding the following new fields:

- **Plant Sciences:** plant cell biology, plant physiology, and systematic botany in selected areas subject to availability of resources.
- **Earth Sciences:** geophysics and geochemistry.
- **Engineering Sciences:** heat transfer, fluid mechanics, and applied mathematics related to these two areas.
- **Information Sciences:** artifical intelligence, pattern recognition, basic computer sciences, numerical analysis and scientific computation theory.
- **International Studies** (seminars preferred).

Fields previously agreed to include archaeology, astronomy, chemistry of natural products, linguistics, materials sciences (ceramics, metallurgy and polymers), and systems analysis (decision and management sciences and operations research).

Proposals for joint research projects and a limited number of joint seminars in the above fields may be submitted at any time. For current information and guidelines, contact Dr. Pierre Perrolle or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

U.S.-Israel Binational Science Foundation

Support for cooperative research to be performed primarily in Israel is awarded by the U.S.-Israel Binational Science Foundation in Jerusalem on the basis of applications for cooperative research grants.

Deadline for receipt of proposals in Jerusalem has been advanced to Nov. 15, 1982. U.S. scientists may obtain information and application forms from international offices of the U.S. agencies related to their research. For information from NSF, contact Dr. R. R. Ronkin, Division of International Programs (357-7613).

New Cooperative Science Program with the United Kingdom

NSF and the U.K. Science and Engineering Research Council have agreed to jointly support bilateral seminars and cooperative research projects. U.S. side deadline for application is Nov. 1, 1982. For additional information, contact Ms. Marilyn Rurak, Division of International Programs (357-7554).

New Deadline for U.S.-Italy Program

Proposals for cooperative research projects and joint seminars must be received by Oct. 1, 1982. For additional information, contact Ms. Marilyn Rurak, Division of International Programs (357-7554).

New Science Resources Studies Publications

NSF's Division of Science Resources Studies has published the following *Highlights*, *Tables*, and *Reports*. Copies are available free from the Division.

Science Resources Studies Highlights:

- **"Graduate Science/Engineering Enrollment Up 3% Between 1979 and 1980" (NSF 82-306)**
- **"Growth in Scientific and Engineering Employment Slows Between 1978 and 1980" (NSF 82-303)**
- **"1980 Federal Obligations to Universities and Colleges Rose Slightly in Constant Dollars" (NSF 82-301)**

The following *Highlights* are in review and will be available from the Division in late summer:

- **"Academic R&D Expenditures Increased 4% in Real Terms Between FY 1979 and FY 1980, But Leveled in FY 1981" (NSF 82-309)**
- **"Academic Science/Engineering Employment Increased Another 3% Between 1980 and 1981"**
- **"Science and Engineering Labor Market in Private Industry" (NSF 82-310)**
- **"National R&D Spending Expected to Reach $85 Billion in 1983"**

Detailed Statistical Tables:

- **Academic Science: Scientists and Engineers, January 1981 (NSF 82-305)**
- **Academic Science: R&D Funds, Fiscal Year 1980 (NSF 82-300)**
- **Scientists, Engineers, and Technicians in Private Industry, 1980 (NSF 81-329)**
- **Research and Development in Industry, 1979. Funds, 1979; Scientists and Engineers, January 1980 (NSF 81-324)**

The following *Tables* are in review and will be available from the Division in late summer.

- **U.S. Scientists and Engineers, 1980**
- **Characteristics of Recent Science/Engineering Graduates: 1980**

Reports:

The following reports will be available from the Division later in the summer;

- **Academic Science: 1972-81. R&D Funds, Scientists and Engineers, Graduate Enrollment and Support (NSF 81-326)**
- **Science and Engineering Degrees—A Source Book: 1950-80 (NSF 82-307)**
- **Activities of Science and Engineering Faculty in Universities and 4-Year Colleges, 1978/79 (NSF 81-323)**
- **1990 R&D Funding Projections**
- **Science and Engineering Careers: The Early Decisions**
- **An Examination of Various Measures Comparing Industrial R&D Expenditures With Selected Financial Indicators**

The following reports are available now or later in the the summer from the Superintendent of Documents, U.S. Government Printing Office, Wash., D.C. 20402. For stock numbers and prices, call NSF's Science Resources Studies Division (634-4622).

- **Women and Minorities in Science and Engineering (NSF 82-302)**
- **Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1980 (NSF 82-308)**
- **Research and Development in Industry, 1979. Funds, 1979; Scientists and Engineers, January 1980 (NSF 82-304)**
- **National Patterns of Science and Technology Resources, 1982**
- **Science and Engineering Personnel: A National Overview**

July/August Mosaic

The July/August issue of the NSF bimonthly magazine, *Mosaic*, carries articles on fish migration, superluminal motion, free-electron lasers, an archaeological controversy, severe-storm research, and integrated optics.

For a sample copy, write to *Mosaic*, NSF, Wash. D.C. 20550. For a subscription ($12 a year; $15 overseas), write to the U.S. Government Printing Office, Wash. D.C. 20402.

Antarctic Journal 1981 Review

The 1981 special review issue of NSF's *Antarctic Journal of the United States* (Volume 16, No. 5) contains 159 short reports by principal investigators and project managers on research and logistics in Antarctica. Disciplines include biology, medical research, earth sciences, glaciology, ocean sciences, the atmospheric sciences, and astronomy.

Individual copies may be bought for $7 ($8.75 foreign) from the U.S. Government Printing Office, Wash., D.C. 20402. Subscriptions (five issues per year) cost $11 ($13.75 foreign).

Public Understanding of Science Publication

A summary of the activities and policies of NSF's Public Understanding of Science program has been published. Copies of *Summary of Grants and Activities FY 1976-1981*, (SE 82-60D) will be available in late June from the Publications Order Form.

National Center for Small Angle Scattering Research

The National Center for Small Angle Scattering Research (NCSASR) is located at the Oak Ridge National Laboratory, Tenn. NCSASR makes a wide variety of experiments possible with facilities for small angle x-ray scattering (SAXS) and small angle neutron scattering (SANS). Both SANS and SAXS have two dimensional position sensitive detectors with data analysis and software available for processing the data.

For further information, contact the Director, Dr. Walter Koehler, National Center for Small Angle Scattering Research, Oak Ridge National Laboratory, Oak Ridge, TN 37830.

Program Deadlines and Target Dates for Proposals

The following listing gives the dates on which proposals for grants are due at NSF in the next four months. It takes approximately six to nine months to process a proposal. Further information may be obtained by contacting the NSF staff members listed for each entry. Brochures indicated in parentheses may be requested on the Publications Order Form. These dates are subject to change.

Program Deadlines for Proposals

Proposals received after this cutoff date generally will be returned to the proposer.

June 1, 1982. U.S.-Japan Cooperative Science. For seminars to take place between April 1, 1983 and March 31, 1984. Contact Mr. Charles Owens, Division of International Programs (357-9537).

June 1, 1982. Industry/University Cooperative Research Centers. Contact Mr. Robert Colton or Mr. Alex Schwarzkof, Division of Industrial Science and Technological Innovation (357-7527).

June 1, 1982. U.S.-Federal Republic of Germany and U.S.-Switzerland Cooperative Science. Semi-annual deadline for proposals for joint research and workshops. Contact Dr. Warren Thompson, Division of International Programs (357-9700).

July 1, 1982. U.S.-Republic of Korea Cooperative Science (Brochure NSF 81-30). This is a new deadline. Proposals received prior to July 1, 1982, will be handled individually on a case by case basis. Proposals for cooperative research in biochemical engineering, marine science, and other areas; short-and long-term visits; and seminars. Contact Dr. Gerald A. Edwards, Division of International Programs (357-9537).

July 1, 1982. Oceanographic Facilities and Support. Contact Mr. Ronald La Count, Division of Ocean Sciences (357-7837).

July 6, 1982. Development in Science Education: Technology in Science Education (NSF-Industry Cooperation for Science and Engineering Education Using Computers).

July 15, 1982. Materials Research Laboratories. Contact Dr. Robert Stokes, Division of Materials Research (357-9791).

Aug. 1, 1982. Ethics and Values in Science and Technology. Formal proposals (Brochure SE 80-62). Preliminary proposals were due May 3. Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

Aug. 1, 1982. U.S.-France Cooperative Science. Joint seminars. (Erochure NSF 80-48). Contact Dr. Stephen Mosier, Division of International Programs (357-7554).

Aug. 4, 1982. Information Science and Technology. Special research initiation awards for new investigators. Contact Dr. Edward Weiss, Division of Information Science and Technology (357-9569).

Aug. 15, 1982. U.S.-Scandinavia and the Netherlands Cooperative Science (Finland and Sweden). Long-term research visits starting in spring semester. Contact Mr. Henryk Uznanski, Division of International Programs (357-7554).

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Target Dates for Proposals

Proposals received after this cutoff date will be reviewed although they may miss a particular panel meeting.

June 1, 1982. Alternative Biological Resources. Contact Dr. H. T. Huang, Divisin of Physiology, Cellular and Molecular Biology (357-9782).

June 1, 1982. Metabolic Biology. Contact Dr. Elijah Romanoff, Division of Physiology, Cellular, and Molecular Biology (357-7987).

June 1, 1982. United States Antarctic Research. Obtain brochure and proposal preparation kit from Division of Polar Programs before submitting proposal. Contact Mr. Guy Guthridge, Division of Polar Programs (357-7817).

June 15, 1982. Ocean Sciences Research. Contact Dr. Robert Wall, Division of Ocean Sciences (357-7912).

June 15, 1982. Ecology. Contact Dr. Gary Barrett, Division of Environmental Biology (357-9734).

June 15, 1982. Systematic Biology. Contact Dr. Grady Webster, Division of Environmental Biology (357-9588).

June 15, 1982. Population Biology and Physiological Ecology. Contact Dr. Jerry Downhower, Division of Environmental Biology (357-9728).

July 1, 1982. Biochemistry. Contact Dr. Michael Cusanovich, Division of Physiology, Cellular, and Molecular Biology (357-7945).

July 1, 1982. Biophysics. Contact Dr. Arthur Kowalsky, Division of Physiology, Cellular, and Molecular Biology (357-7777).

July 1, 1982. Cell Biology. Contact Dr. Jack Pate, Division of Physiology, Cellular, and Molecular Biology (357-7474).

July 1, 1982. Cell Physiology. Contact Dr. Joseph Albright, Division of Physiology, Cellular, and Molecular Biology (357-7377).

July 1, 1982. Developmental Biology. Contact Dr. Susan Bryant, Division of Physiology, Cellular, and Molecular Biology (357-7989).

July 1, 1982. Genetic Biology. Contact Dr. DeLill Nasser, Division of Physiology, Cellular, and Molecular Biology (357-9687).

July 1, 1982. Regulatory Biology. Contact Dr. Bruce Umminger, Division of Physiology, Cellular, and Molecular Biology (357-7975).

Aug. 1, 1982. Climate Dynamics. Contact Dr. Alan Hecht, Division of Atmospheric Science (357-9892).

Continued On Page Six

Program Deadlines—Continued

Sept. 15, 1982. U.S.-India Exchange of Scientists (Brochure NSF 80-53). For travel between May 15 and Nov. 15, 1983. Contact Mr. Eugene Pronko, Division of International Programs (357-9550).

Sept. 15, 1982. Computer Science Coordinated Experimental Research Facilities. Contact Dr. W. Richards Adrion, Division of Mathematical and Computer Sciences (357-7375).

Target Dates—Continued

Sept. 1, 1982. Ethics and Values in Science and Technology. Preliminary proposals (Brochure SE 80-62). Contact Dr. Rachelle Hollander, Intergovernmental and Public Service Science and Technology Programs (357-7552).

Sept. 1, 1982. Arctic Research Program (Brochure available from Polar Programs). Contact Mr. Guy Guthridge, Division of Polar Programs (357-7817).

Sept. 1, 1982. Economics. Contact Dr. Daniel Newlon, Dr. James Blackman, or Dr. Lynn Pollnow, Division of Social and Economic Science (357-9675).

Sept. 1, 1982. Decision and Management Science. Contact Dr. Trudi Miller, Division of Social and Economic Science (357-7569).

Sept. 1, 1982. Earth Sciences: stratigraphy and paleontology; environmental geosciences; crustal structure and tectonics; seismology and deep earth structure; experimental and theoretical geophysics; petrogenesis and mineral resources; mantle geochemistry; and experimental and theoretical geochemistry. Contact Dr. Robin Brett, Division of Earth Sciences (357-7958).

Sept. 1, 1982. Geography and Regional Science. Contact Dr. James Blackman, Division of Social and Economic Science (357-9674).

Sept. 1, 1982. Political Science. Contact Dr. Frank Scioli, Jr., Division of Social and Economic Science (357-7534).

Sept. 1, 1982. Law and Social Sciences. Contact Dr. Felice Levine, Division of Social and Economic Science (357-9567).

Sept. 1, 1982. Regulation and Policy Analysis. Contact Dr. Laurence Rosenberg, Division of Social and Economic Science (357-7417).

Sept. 1, 1982. Sociology. Contact Dr. James Zuiches, Division of Social and Economic Science (357-7802).

Sept. 1, 1982. Measurement Methods and Data Resources. Contact Dr. Murray Aborn, Division of Social and Economic Science (357-7913).

Sept. 1, 1982. History and Philosophy of Science. Contact Dr. Ronald Overmann, Division of Social and Economic Science (357-7617).

Sept. 30, 1982. Biological Instrumentation. Contact Dr. Robert Newburgh, Division of Physiology, Cellular, and Molecular Biology (357-7652).

Proposals may be submitted for the following programs at any time of the year. It takes approximately six to nine months to process a proposal. Brochures indicated in parentheses may be ordered on the Publications Order Form.

Division of Behavioral and Neural Sciences

Anthropology. Contact Dr. John Yellen (357-7804).
Linguistics. Contact Dr. Paul Chapin (357-7696).
Memory and Cognitive Processes. Contact Dr. Joseph Young (357-9898).
Neurobiology. Contact Dr. Steven E. Kornguth (357-7471).
Psychobiology. Contact Dr. Fred Stollnitz (357-7949).
Sensory Physiology and Perception. Contact Dr. Terrence Dolan (357-7428).
Social and Developmental Psychology. Contact Dr. Jean Intermaggio (357-9485).

Division of Environmental Biology

Biological Research Resources. Contact Dr. James Tyler (357-7475).
Doctoral Dissertation Research. Contact Mr. Mark Courtney (357-9588).
Ecosystem Studies. Contact Dr. W. Franklin Harris or Dr. James Callahan (357-9596).

Division of International Programs

Science in Developing Countries. Contact Dr. Gordon Hiebert (357-9537).

U.S.-China Cooperative Science. (See U.S.-China item in this *Bulletin*, p 3.) For joint research projects and a limited number of joint seminars in the following areas: archaeology, astronomy, chemistry, linguistics, materials sciences, systems analysis, plant sciences, earth sciences, engineering sciences, information sciences, and international studies. For current information and guidelines, contact Dr. Pierre Perrolle, or Mr. Alexander DeAngelis, Division of International Programs (357-7393).

U.S.-East Asia Cooperative Science (Brochure NSF 81-30). For projects with Indonesia, Malaysia, Thailand, and Singapore, contact Dr. Gordon Hiebert (357-9537); for projects with the Philippines, contact Dr. Gerald A. Edwards (357-9537).

U.S.-New Zealand Cooperative Science. Contact Mr. Alan Milsap (357-9558).

U.S.-Eastern Europe Cooperative Science. (Brochure NSF 81-27) Contact Miss Deborah Wince (357-9516).

Engineering Research Equipment (Brochure NSF 81-31). Contact the appropriate Engineering Division: Electrical, Computer, and Systems Engineering (357-9618); Chemical and Process Engineering (357-9606); Civil and Environmental Engineering (357-9545); and Mechanical Engineering and Applied Mechanics (357-9542). For Administrative inquiries, contact Ms. Janice Apruzese, Directorate for Engineering (357-9834).

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Proposals—Continued

Industry/University Cooperative Research Projects (Brochure NSF 80-31). Contact Division of Industrial Science and Technological Innovation: Dr. Frederick Betz (357-7784) or Mr. Alex Schwarzkopf (357-7527).

Research In Information Science and Technology (Brochure NSF 81-34). Contact the Division of Information Science and Technology (357-9572).

Guidelines for Proposals for the Ecosystem Studies Program

Multi-investigator, multi-disciplinary proposals submitted to the Ecosystem Studies program, Division of Environmental Biology, should be limited to 60 double-spaced pages for the body of the research proposition (i.e., introduction, literature review, hypothesis exposition, methods, project execution and management plan). Appendices of supporting materials (e.g., bibliographies, budgets, professional resumes, catalogs of extant information and related research efforts) should be limited to 40 single-spaced pages. Proposals should be typed on one side only, numbered at the bottom, and should be bound only in the top left corner.

Proposals for studies involving only one or two investigators/disciplines must comply with the limitations (i.e., 30 double-spaced pages of text) described in the brochure *Grants for Scientific Research* (NSF 81-79F). General format requirements described in the *Grants* brochure apply to all proposals.

Proposals not adhering to these guidelines will be returned.

Contact Dr. James Callahan, Associate Program Director, Ecosystem Studies, for further information (357-9596).

Proposals for Regional Conferences in Mathematic Sciences

It is anticipated that the deadline for proposals for Regional Conferences in the Mathematical Sciences to be funded in fiscal year 1983 will again be Nov. 15, 1982. Administrative details regarding these conferences are not yet clear. Such information as exists may be obtained from Special Projects Program/Regional Conferences, Mathematical Sciences Section.

Scientific Computing Research Equipment

NSF's Division of Mathematical and Computer Sciences plans to continue for the second year the award of a limited number of grants for the purchase of computing equipment for research in the mathematical sciences.

Grants will be made only to U.S. graduate-degree-granting institutions with departments or research programs in mathematics, applied mathematics, or statistics. Proposals involving inter-institutional or inter-departmental sharing arrangements are welcome. These grants are intended for purchase of special-purpose equipment dedicated to the support of research in the mathematical sciences. The equipment should be necessary for the pursuit of specific research projects, rather than intended to provide general computing capacity.

These grants are intended for researchers whose research has been handicapped or limited due to lack of access to suitable equipment.

The deadline for applications for such grants is Dec. 1, 1982.

Questions concerning proposals should be directed to Dr. Alvin Thaler, Program Director for Special Projects, Mathematical Sciences Section (357-9764).

June, July and August 1982 Publications Order Form

Single copies of the following publications are available by checking appropriate boxes. Only those publications listed below can be ordered on this form. Requests for NSF publications listed in previous *Bulletins* must be made separately and will be honored only if the publications are available. This Order Form and requests for other publications should be sent to Forms and Publications Unit, National Science Foundation, 1800 G St., N.W., Washington, D.C. 20550.

Check:

- ☐ NSF 80-31. Industry/University Cooperative Research.
- ☐ NSF 80-48. U.S.-France Cooperative Science.
- ☐ NSF 80-53. U.S.-India Cooperative Science.
- ☐ NSF 81-27. U.S.-Eastern Europe Cooperative Science.
- ☐ NSF 81-30. U.S.East Asia Cooperative Science.
- ☐ NSF 81-31. Engineering Research Equipment.
- ☐ NSF 81-34. Research in Information Science and Technology.
- ☐ NSF 81-79. Grants for Scientific and Engineering Research.
- ☐ NSF 82-27. Science, Technology and Economic Revitalization.
- ☐ NSF 82-20A. (Guidelines) and NSF 82-20B (Flier). Development in Science Education: Technology in Science Education (NSF-Industry Cooperation for Science and Engineering Education Using Computers).
- ☐ SE 80-62. Ethics and Values in Science and Technology.
- ☐ SE 82-60D. Summary of Public Understanding of Science FY 1976-1981.

Name: _____

Title: _____

Address: _____

_____

Positions Open in NSF

- **NSF's Directorate for Biological, Behavioral and Social Sciences** is seeking qualified applicants for the position of division director, Division of Physiology, Cellular and Molecular Biology. This position, which will be filled on a career or rotational basis, is part of the Senior Executive Service with a salary ranging from $54,755 to $59,119 (currently limited by statute to $58,500) per annum. Applicants must have a Ph.D. or equivalent professional experience or a combination of education and equivalent experience in the cellular, genetic, and/or molecular areas of biology. Substantial research experience and strong evidence of scholarship in the biological sciences are required. Also essential are: 1) supervisory and managerial experience, 2) experience in the planning of diverse research programs in the field of cellular, genetic and/or molecular biology, and 3) experience coordinating with representatives of the scientific and academic communities. All applications should be received by June 4, 1982. Applicants should contact Margaret Cademartori (357-7857) to request a vacancy announcement containing qualification requirements and application procedures.

Applicants for the following positions should submit current resumes to NSF, Personnel Administration Branch, Room 212, 1800 G Street, N.W., Washington, D.C. 20550, Attn: Mr. E. Paul Broglio (357-7840). NSF is an Equal Opportunity Employer.

- **NSF's Division of Chemical and Process Engineering** is seeking qualified candidates for the program director for Separation Processes for a one- or two-year rotational assignment at grade EC-14/EP-15 (GS-14/15 equivalent) to be filled before Aug. 31, 1982. The position is excepted from the competitive civil service with a salary ranging from $39,689 to $60,689 (currently limited to $57,500) per annum depending upon qualifications. The program supports research on the separation technology needed by the chemical process industry. A broad array of separation processes are considered, such as solid-solid, solid-liquid, solid-gas, liquid-liquid, liquid-gas, gas-gas, and gas-solid-liquid separations. Responsibilities include program planning and budgeting, proposal evaluation, grant administration, as well as liaison with other NSF programs and Federal agencies. Contacts with the research community are maintained through site visits and attendance at professional meetings. Applicants should have a doctoral degree in chemical engineering or closely related fields and considerable research background. Teaching and industrial experiences are desirable, but not absolutely required.

- **NSF's Division of Physiology, Cellular and Molecular Biology** is seeking qualified candidates to fill a one- or two-year rotational assignment as program director for the Biological Instrumentation program. The position is excepted from the competitive civil service at grade EC-14/EP-15 (equivalent to GS-14/15), with a salary ranging from $39,689 to $60,689 (currently limited by statute to $57,500) per annum. Candidates should have Ph.D., significant research and administrative experience and a broad understanding of instrumentation and its application in the biological sciences.

- **NSF's Division of Physiology, Cellular and Molecular Biology** is seeking qualified candidates to fill one- or two-year rotational assignments as program director for the Cell Biology program and the Cellular Physiology program. These positions are excepted from the competitive civil service at grade EC-14/EP-15 (equivalent to GS-14/15), $39,689 to $60,689 (currently limited by statute to $57,500) per annum. The position in Cell Biology will become available in Sept. 1982 and the Cellular Physiology position in July 1982. Applicants should have a Ph.D. or equivalent experience and a broad understanding of current research in the areas represented in each of the programs. Some administrative experience is desirable.

- **NSF's Division of Physiology, Cellular and Molecular Biology** is seeking qualified candidates to fill a one- or two-year rotational assignment as program director for the Biochemistry program. The position is excepted from the competitive civil service at grade EC-14/EP-15 (equivalent to GS-14/15), with a salary ranging from $39,689 to $60,689 (currently limited by statute to $57,500) per annum. The program supports research aimed at understanding the molecular basis of life and covers areas including the mechanism of enzyme action; biosynthesis of macromolecules; structure and function of biomolecules; generation, storage and transduction of energy; organization of function of cell walls and membranes; and the physico-chemical properties of contractile proteins. Candidates should have a Ph.D. and at least 6 to 8 years of research experience beyond the Ph.D. and a broad understanding of current research in biochemistry.

- **NSF's Division of Mathematical and Computer Sciences** is seeking qualified applicants for positions in the Mathematical Sciences which periodically become available. The positions are filled on a one- or two-year rotational basis and are excepted from the competitive civil service. The salaries are negotiable and range from $39,689 to $57,500 per annum (GS-14/15 equivalent). The openings are expected to be in the fields of modern analysis, applied mathematics, geometric analysis, and statistics and probability. Applicants should have a Ph.D. or equivalent experience and training in an appropriate field, plus six years of successful scientific research experience. A broad general knowledge of the field and some administrative experience are also required.

- **NSF's Division of Earth Sciences** is seeking qualified candidates for the position of program director, Experimental and Theoretical Geophysics program. The position is excepted from the competitive civil service and will be filled on a permanent or two-year rotational assignment at grade EC-14 (equivalent to GS-14). The salary ranges from $39,368 to $51,596 per annum. This program supports research concerned with the physical properties of the solid earth including the earth's dimensions, its magnetic, electrical and gravitational fields, its dynamic processes, and the physical behavior of materials under the conditions of temperature and pressure encountered in its interior.

Continued On Page Nine

Positions Open—Continued

- **NSF's Division of Materials Research** is seeking qualified applicants for the position of program officer for the Metallurgy program. The position is excepted from the competitive civil service and is equivalent to a GS-14/15 grade level ($39,689 to $57,500). This position will be filled on a one-year rotational basis. Applicants should have a Ph.D. or equivalent in metallurgy/materials science or related disciplines, a substantial record of scientific research publications, and preferably some experience in directing/managing basic research in an academic, industrial, or governmental institution.

- **NSF's Division of Social and Economic Sciences** is seeking qualified candidates for the position of associate program director, Political Science program, Political and Policy Science Section. This is a one- or two-year rotational assignment and is excepted from the competitive civil service at grade EC-13/14 (GS-13/14 equivalent). The salary ranges from $33,580 to $51,596 per annum, depending upon qualifications. Appointment period will begin during the summer of 1982. Candidates should have Ph.D. or equivalent experience and at least 5 years scientific research experience beyond the Ph.D. in political science/public administration. Responsibilities include all aspects of proposal development, review and evaluation, grant and program administration.

GEOSECS *Atlas*, Vols. 1 and 4: Atlantic and Pacific

Vertical sections, profiles and other hydrographic data of the Atlantic and Pacific Ocean are presented in the form of color charts in Volumes 1 and 4 of the GEOSECS *Atlas*. These are among the first of eight volumes that will contain GEOSECS data from the Atlantic, Pacific, and Indian Oceans. GEOSECS (Geochemical Ocean Sections Study) is one of the programs of the International Decade of Oceanographic Exploration (IDOE), 1970-1980, supported by NSF.

Copies of the *Atlas* can be purchased through the Superintendent of Documents, U.S. Government Printing Office, Wash., D.C. 20402. Price is $15 for Vol. 1 (stock number 038-000-00491-3) and $19 for Vol. 4 (stock number 038-000-00496-4). Copies of Vol. 2 are available at $24 (stock number 038-000-00435-2).

Staff Changes

Laura P. Bautz to Division Director, Division of Astronomical Sciences (357-9488).

Norman Caplan to Deputy Division Director, Division of Electrical, Computer and Systems Engineering (357-9618).

Leonard E. Johnson to Program Director, Seismology and Deep Earth Structure Program, Division of Earth Sciences (357-7721).

Margrete S. Klein to Staff Associate, Division of Physics (357-7611).

John F. Lance to Program Director, Stratigraphy and Paleontology Program, Division of Earth Sciences (357-7806).

Murli H. Manghnani to Program Director, Experimental and Theoretical Geophysics Program (357-7355).

Elaine R. Padovani to Program Director, Petrogenesis and Mineral Resources Program, Division of Earth Sciences (357-7911).

Thomas Quarles to Staff Associate, Planning, Office of the Assistant Director, Directorate for Biological, Behavioral and Social Sciences (357-9894).

Garth W. Redfield to Associate Program Director, Ecology Program, Division of Environmental Biology (357-9734).

Charles Wallace to Assistant Program Manager, U.S.-Japan Program, Latin America and Pacific Section, Division of International Programs (357-9537).

Richard W. West to Program Manager, Ship Facilities Program, Oceanographic Facilities Support Section, Division of Ocean Sciences (357-7837).

Thomas O. Wright to Crustal Structure and Tectonics Program, Division of Earth Sciences (357-7915).

Advisory Committee for Chemical and Process Engineering

The Advisory Committee for Chemical and Process Engineering will meet June 24 and 25, 1982, at NSF. Further information may be obtained by calling Mr. Lewis Mayfield, Chemical and Process Engineering Division (357-9606).

National Science Foundation
Washington, D.C. 20550

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